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STRUCTURES DETAIL SHEET

SD-516.10 BRIDGE JOINT ASPHALTIC PLUG

VAOT STANDARDS

C-2A	10-14-05	E-123	03-16-04
C-2B	10-14-05	E-127	08-08-95
C-3A	03-10-08	E-134	08-08-95
C-3B	03-10-08	E-136B	08-08-95
C-10	02-11-08	E-138	05-30-03
D-6	06-01-94	E-140	08-30-96
D-8	01-03-00	E-141	09-20-95
D-9	06-01-94	E-142	09-20-95
D-15	06-01-94	E-143	06-15-04
D-16	06-01-94	E-150	05-01-04
E-100	01-02-04	E-152	05-01-04
E-100A	01-02-04	E-153	05-01-04
E-101	05-30-03	E-154	05-01-04
E-102	06-30-03	E-164	06-08-09
E-102A	05-01-04	E-191	02-01-99
E-103	03-01-04	E-192	10-12-00
E-106	03-01-04	E-193	08-18-95
E-107	06-30-03	G-1	01-03-2000
E-107A	06-08-09	G-1d	01-03-2000
E-108	06-08-09	G-19	11-15-02
E-108A	06-08-09	J-3	08-07-95
E-110	08-08-95		
E-120	08-08-95		
E-121	08-08-95		

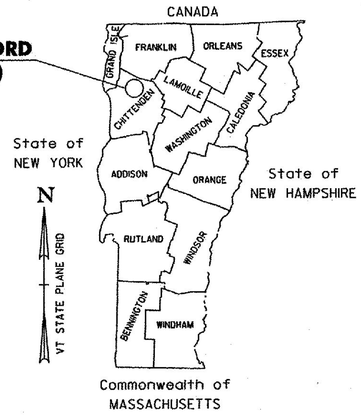
STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
TOWNS OF ESSEX & WESTFORD
COUNTY OF CHITTENDEN
VT ROUTE 128
MAJOR COLLECTOR

BEGINNING IN THE TOWN OF ESSEX ON VT ROUTE 128 AT STA. 0+58.08 (MM 0.011) AND EXTENDING NORTHERLY ALONG VT ROUTE 128 FOR A DISTANCE OF 30,064.32 FEET (5.694 MILES) TO STA. 68+85.12 (MM 1.304) IN THE TOWN OF WESTFORD.

PROJECT DATA:	LENGTH (FEET)	LENGTH (MILES)
TOWN OF ESSEX		
VT ROUTE 128		
STA. 0+58.08 TO 232+37.28	23,179.20	
MM 0.011 TO 4.401		4.390
TOWN OF WESTFORD		
VT ROUTE 128		
STA. 0+00.00 TO 68+85.12	6,885.12	
MM 0.000 TO 1.304		1.304
TOTAL LENGTH OF PROJECT:	30,064.32	5.694
TOTAL LENGTH OF ROADWAY:	30,064.32	5.694

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES COLD PLANING, RECLAIMING AND RESURFACING OF THE EXISTING HIGHWAY WITH A RECLAIMED STABILIZED BASE, COLD MIXED RECYCLED PAVEMENT, LEVELING COURSE AND WEARING COURSE, CORRECTING SUPERELEVATION DEFICIENCIES, AND PROVIDING NEW PAVEMENT MARKINGS, GUARDRAIL, SIGNS AND OTHER RELATED HIGHWAY ITEMS.



RECORD PLANS

CONTRACTOR: F.W. WHITCOMB CONSTRUCTION CORP. – WALPOLE, NH

RESIDENT ENGINEER: DELVIN WARNER

CONSTRUCTION BEGAN: JULY 16, 2013

CONSTRUCTION COMPLETE: AUGUST 25, 2014

RECORD PLANS BY: DELVIN WARNER & KEVIN KING

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE 04/19/17

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

SUPERPAVE BITUMINOUS CONCRETE PAVEMENT MIXTURE DESIGN CRITERIA

DESIGN LANE/DESIGN LIFE ESALS	644,000
DESIGN NUMBER OF GYRATIONS	65
PERFORMANCE GRADE ASPHALT BINDER	SEE SUBSECTION 490.03(b)

TRAFFIC DATA

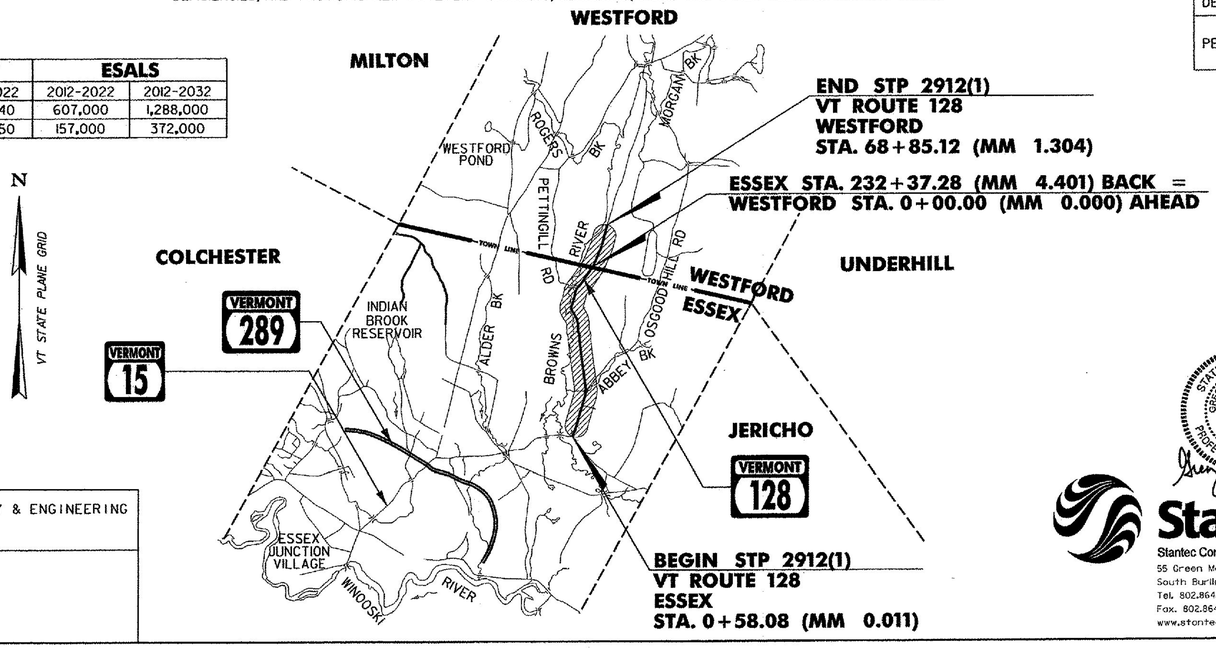
VT ROUTE 128

LOCATION	AADT		DHV		ESALS	
	2012	2022	2012	2022	2012-2022	2012-2032
BEGIN PROJECT TO WEED ROAD (TH-63)	3800	3900	430	440	607,000	1,288,000
WEED ROAD (TH-63) TO END PROJECT	2100	2200	240	250	157,000	372,000

QUALITY ASSURANCE PROGRAM: LEVEL 3

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARDRAIL
RAILROAD
SURVEY LINE
CULVERT
UTILITY POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS (SR SR SR)
TOP OF CUT
TOE OF SLOPE



END STP 2912(1)
VT ROUTE 128
WESTFORD
STA. 68+85.12 (MM 1.304)

ESSEX STA. 232+37.28 (MM 4.401) BACK =
WESTFORD STA. 0+00.00 (MM 0.000) AHEAD

BEGIN STP 2912(1)
VT ROUTE 128
ESSEX
STA. 0+58.08 (MM 0.011)

SURVEYED BY : VERMONT SURVEY & ENGINEERING
SURVEYED DATE : 2011

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83

RIGHT-OF-WAY LIMITS, IF APPLICABLE, ARE PROVIDED SOLELY FOR THE CONVENIENCE OF THE STATE AND ITS CONTRACTOR DURING THE COURSE OF THIS PAVING PROJECT. ANY REFERENCES TO OFFSETS ON THESE PLANS ARE APPROXIMATE AND SHOULD NOT BE RELIED UPON FOR ANY PURPOSES.

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

UNLESS OTHERWISE NOTED, ALL DRAWINGS AND DETAILS ON THESE PLANS ARE DRAWN "NOT TO SCALE".

STATE OF VERMONT
GREGORY A. EDWARDS
No. 5842
REGISTERED PROFESSIONAL ENGINEER
2-20-13

Stantec
Stantec Consulting Services Inc.
55 Green Mountain Drive
South Burlington VT U.S.A. 05403
Tel. 802.864.0223
Fax. 802.864.0165
www.stantec.com

pl0c226.dgn
pl0c226ts.i

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 2-21-13

PROJECT MANAGER : MICHAEL FOWLER

PROJECT NAME : ESSEX-WESTFORD
PROJECT NUMBER : STP 2912(1)

SHEET 1 OF 239 SHEETS

RONALD PERRY

DIRECTION	ACTUAL GRID POINTS	PROJECT SPECIFIC COORDINATE POINTS
	ENGLISH	
N	759471.920 FT	
E	1505360.836 FT	
Z	411.724 FT	

GENERAL LOCATION, WESTFORD, VT. OWNERSHIP, RONALD PERRY, 1292 VT ROUTE 128, WESTFORD VT 05494.

TO REACH FROM THE INTERSECTION OF TOWERS ROAD, VT ROUTE 15 AND VT ROUTE 128 (BROWNS RIVER ROAD) IN ESSEX CENTER GO NORTHEAST ALONG VT ROUTE 128 FOR 6.0 MI (9.7 KM) TO THE SITE OF THE MARK ON THE LEFT IN A FIELD, ABOUT 100 M (328.1 FT) SOUTH OF A FIELD DRIVE ACCESS.

THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A 3.0 M (9.8 FT) X 0.4 M (1.3 FT) ROCK OUTCROP.

IT IS 90.4 M (296.6 FT) NORTHWEST OF AND ABOUT 2 M (6.6 FT) LOWER THAN THE CENTERLINE OF BROWNS RIVER ROAD, 81.3 M (266.7 FT) EAST-SOUTHEAST OF A 70 CM (28 INCH) WHITE PINE, 20.2 M (66.3 FT) SOUTHWEST OF THE PEAK OF A 10.5 M (34.4 FT) X 4.0 M (13.1 FT) ROCK OUTCROP WHICH PROJECTS ABOUT 1.0 M (3.3 FT) ABOVE GROUND SURFACE, 103.6 M (339.9 FT) SOUTHWEST OF THE CENTERLINE OF THE FIELD DRIVE AND 61.9 M (203.1 FT) NORTH OF A 45 CM (18 INCH) MAPLE AND A FIBERGLASS WITNESS POST.

DESCRIPTIONS PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT.

CLOW

DIRECTION	ACTUAL GRID POINTS	PROJECT SPECIFIC COORDINATE POINTS
	ENGLISH	
N	744165.105 FT	744165.105 FT
E	1501944.440 FT	1501944.440 FT
Z	410.902 FT	410.902 FT

GENERAL LOCATION, ESSEX, VT. OWNERSHIP, DAVID CLOW, 305 BROWNS RIVER ROAD, ESSEX JUNCTION, VT 05452.

TO REACH FROM THE INTERSECTION OF TOWERS ROAD, VT ROUTE 15 AND VT ROUTE 128 (BROWNS RIVER ROAD) IN ESSEX CENTER GO NORTHEAST ALONG VT ROUTE 128 FOR 2.9 MI (4.7 KM) TO THE INTERSECTION OF A GRAVEL DRIVE RIGHT. TURN RIGHT AND GO EAST AND THEN NORTH ALONG THE DRIVE FOR 0.1 MI (0.2 KM) (PASSING A TRAILER HOME ON THE LEFT) TO THE CLOW RESIDENCE ON THE LEFT AND THE SITE OF THE MARK ON THE RIGHT.

THE MARK IS SET IN THE WEST END OF A MASSIVE ROCK OUTCROP.

IT IS 11.3 M (37.1 FT) EAST OF AND ABOUT 2 M (6.6 FT) HIGHER THAN THE CENTERLINE OF THE NOW-PAVED DRIVE, 26.0 M (85.3 FT) SOUTHWEST OF THE SOUTHWEST CORNER OF THE HOUSE, 22.9 M (75.1 FT) SOUTH-SOUTHWEST OF THE SOUTHEAST CORNER OF THE HOUSE, 26.9 M (88.3 FT) SOUTH OF A WELL AND 4.4 M (14.4 FT) SOUTH OF A FIBERGLASS WITNESS POST.

EVANS

DIRECTION	ACTUAL GRID POINTS	PROJECT SPECIFIC COORDINATE POINTS
	ENGLISH	
N	733124.962 FT	
E	1486286.307 FT	
Z	482.278 FT	

GENERAL LOCATION, ESSEX, VT., ABOUT 1.5 MI (2.4 KM) NORTHEAST OF ESSEX JUNCTION.

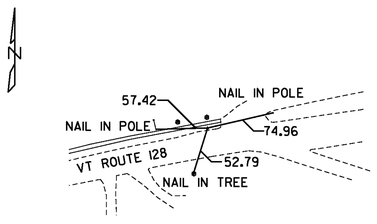
TO REACH FROM THE VT ROUTE 15 BRIDGE OVER THE CIRCUMFERENTIAL HIGHWAY (ROUTE 289) GO NORTHWEST ALONG ROUTE 289 FOR 0.2 MI (0.3 KM) TO THE JUNCTION OF THE NORTHWEST END OF AN ON-RAMP AND THE MARK ON THE RIGHT.

THE MARK IS SET IN A FIELD 8 CM BELOW GROUND SURFACE IN THE TOP OF A ROCK OUTCROP OF WHICH 30 CM IS EXPOSED.

IT IS 56.0 M (183.7 FT) NORTHEAST OF AND ABOUT 7 M (23.0 FT) HIGHER THAN THE CENTERLINE OF ROUTE 289, 8.4 M (27.6 FT) WEST OF A 25 CM CHERRY AT THE CORNER OF A BRUSHLINE, 18.7 M (61.4 FT) NORTHWEST OF A 4 CM SPRUCE, AND 1.2 M (3.9 FT) NORTHEAST OF A FIBERGLASS WITNESS POST AND THE RIGHT-OF-WAY FENCE.

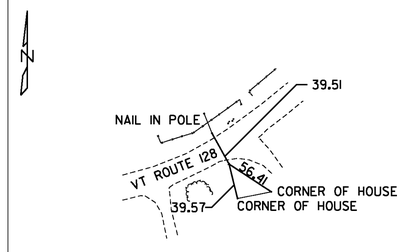
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ELEV=496.912



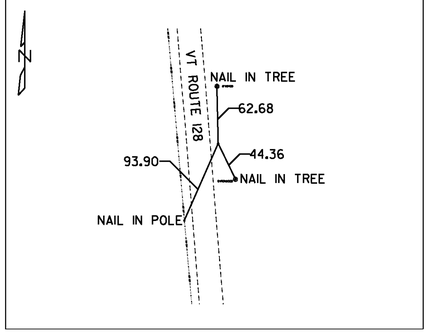
HVCTRL 2

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E=1496521.100
ELEV=491.359



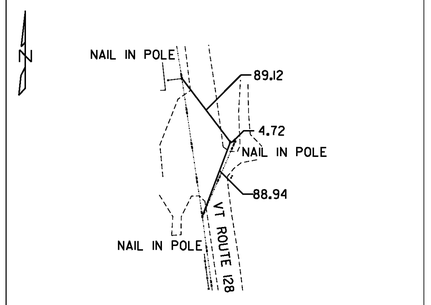
HVCTRL 3

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E=1501828.479
ELEV=477.307



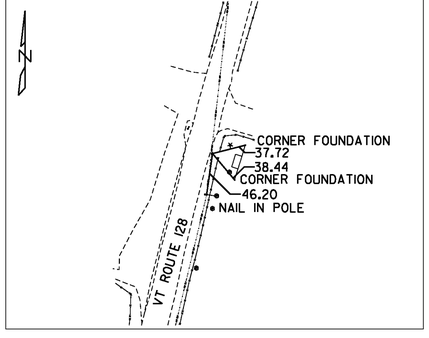
HVCTRL 4

N=743943.797
E=1501668.223
ELEV=483.978



HVCTRL 5

N=753938.065
E=1504091.533
ELEV=491.794



NOT TO SCALE

NOTE: ALL DIMENSIONS ARE IN FEET UNLESS NOTED OTHERWISE.

Stantec

PROJECT TIE SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226ct01.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 2 OF 239

LANG

DIRECTION	ACTUAL GRID POINTS	PROJECT SPECIFIC COORDINATE POINTS
	ENGLISH	
N	731743.240 FT	
E	1486466.540 FT	
Z		

GENERAL LOCATION, ESSEX, VT., 1.5 MI (2.4 KM) NORTHEAST OF ESSEX JUNCTION.

TO REACH FROM THE 5-CORNERS INTERSECTION OF VT ROUTES 15, 117, AND 2A IN ESSEX JUNCTION GO NORTHEAST ALONG VT ROUTE 15 FOR 1.5 MI (2.4 KM) TO THE MARK ON THE RIGHT.

THE MARK IS SET IN THE TOP OF THE EAST END OF A LEDGE CUT.

IT IS 0.1 MI (0.2 KM) WEST OF THE VT ROUTE 15 BRIDGE OVER ROUTE 289. THE MARK IS 18.6 M (61.0 FT) SOUTH OF AND ABOUT 5 M (16.4 FT) HIGHER THAN THE CENTERLINE OF VT ROUTE 15, 17.8 M (58.4 FT) WEST-NORTHWEST OF THE NORTHWEST CORNER OF A ONE STORY HOUSE, 5.1 M (16.7 FT) SOUTH OF THE NORTH EDGE OF THE LEDGE CUT, 8.3 M (27.2 FT) SOUTH-SOUTHEAST OF POLE NO. 57/54, AND 8.3 M (27.2 FT) WEST OF A FIBERGLASS WITNESS POST AND POLE NO. 57-01/53A.

DESCRIPTIONS PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT.

AE3721

DIRECTION	ACTUAL GRID POINTS		PROJECT SPECIFIC COORDINATE POINTS
	METRIC	ENGLISH	
N	224363.203 M	736098.28 FT	
E	455905.026 M	1495748.41 FT	
Z	189.11 M	620.4 FT	

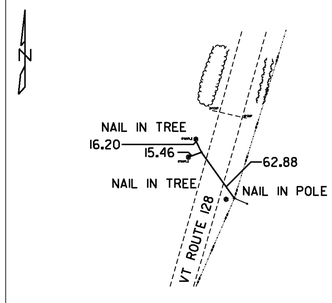
GENERAL LOCATION, ESSEX CENTER, VT. OWNERSHIP, DOUG AND MARY BETH MAGNANT, 43 BIXBY HILL ROAD, ESSEX JUNCTION, VT 05452.

TO REACH FROM THE INTERSECTION OF VT ROUTES 128 NORTH AND 15 IN ESSEX CENTER GO EAST ALONG VT ROUTE 128 NORTH FOR 0.1 MI (0.2 KM) TO THE INTERSECTION OF BIXBY HILL ROAD AT A CROSSROADS. TURN LEFT AND GO NORTH-NORTHEAST ALONG BIXBY HILL ROAD FOR 0.45 MI (0.72 KM) TO THE CREST OF A HILL AND THE MARK ON THE LEFT, ABOUT 74 M (242.8 FT) NORTHWEST OF AND ACROSS THE ROAD FROM THE NORTHWEST CORNER OF THE 2 STORY HOUSE OF MAGNANT.

THE MARK IS A U.S. CORPS OF ENGINEERS ARMY MAP SERVICE DISK SET IN THE NORTH END OF A MASSIVE ROCK OUTCROP.

IT IS 35.3 M (115.8 FT) WEST OF AND ABOUT 10 M (32.8 FT) HIGHER THAN THE CENTERLINE OF BIXBY HILL ROAD, 19.7 M (64.6 FT) EAST OF THE SOUTHEAST CORNER OF A CHAIN LINK FENCE SURROUNDING A MUNICIPAL WATER TANK, 12.0 M (39.4 FT) WEST OF THE WEST FACE OF A LARGE PIECE OF DETACHED LEDGE WHICH PROJECTS ABOUT 2.0 M, (6.6 FT) AND 6.6 M (21.7 FT) SOUTHWEST OF A FIBERGLASS WITNESS POST.

HVCTRL 6
N=755124.387
E=1504384.239
ELEV=462.139



NOT TO SCALE

NOTE: ALL DIMENSIONS ARE IN FEET UNLESS NOTED OTHERWISE.

PROJECT TIE SHEET #2

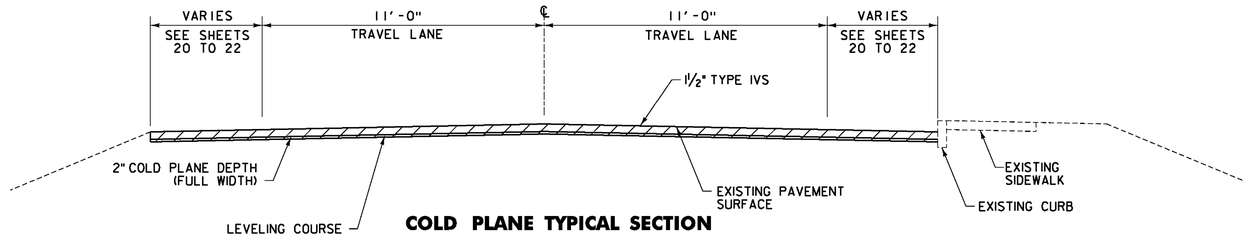
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226ct02.i

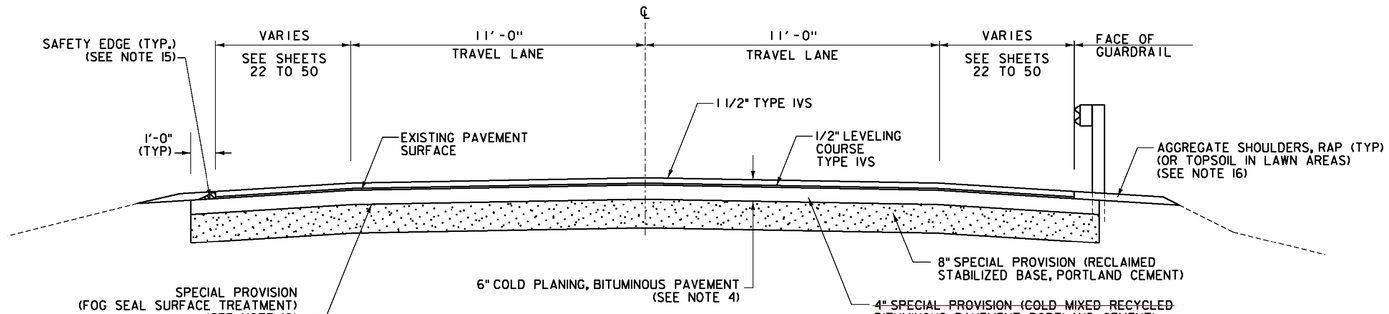
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 3 OF 239

NOTES

1. WETLANDS HAVE BEEN LOCATED NEAR SECTIONS OF THE PROJECT AREA. IF WORK EXTENDS INTO THE WETLANDS, STATE AND FEDERAL PERMITS WILL BE REQUIRED (TO BE ACQUIRED BY THE CONTRACTOR). SEE LAYOUTS FOR INDIVIDUAL SENSITIVE LOCATIONS.
2. ALL WORK SHALL BE PERFORMED WITHIN THE STATE RIGHT OF WAY.
3. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE PROJECT AREA TO OBTAIN A UNIT COST FOR ITEM 201.10 CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS.
4. COLD PLANING TO BE COMPLETED ACCORDING TO TYPICAL OR AS NOTED OTHERWISE ON THE PLANS. THIS SHALL BE PAID AS ITEM 210.10 COLD PLANING, BITUMINOUS PAVEMENT. A FULL DEPTH BUTT JOINT SHALL BE CONSTRUCTED AT THE BEGINNING AND END OF THE PROJECT AND ALL PAVED SIDE ROAD APPROACHES AS DENOTED ON THE PROJECT PLANS OR AS OTHERWISE DIRECTED BY THE ENGINEER. SAWCUTTING WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO ITEM 210.10 COLD PLANING, BITUMINOUS PAVEMENT.
5. THE COLD PLANED SURFACES BETWEEN ESSEX STA. 0+58.08 AND 11+71.00 SHALL HAVE SURFACE PREPARATION BEFORE THE LEVELING COURSE IS PLACED. SURFACE PREPARATION SHALL CONSIST OF POTHOLE PATCHING AND PATCHING OF ALL LARGE CRACKS THAT ARE AT LEAST ONE INCH IN WIDTH. THIS WORK SHALL BE PAID AS ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT SURFACE PREPARATION, TYPE I). SEE DETAIL ON SHEET 18.
6. THE CONTRACTOR SHALL USE CAUTION WHEN COLD PLANING AND PAVING OPERATIONS OCCUR ON BRIDGE DECKS. SHOULD ANY DAMAGE OCCUR TO THE DECK OR MEMBRANE AS A RESULT OF THESE OPERATIONS THE ENGINEER SHALL CONTACT THE VTRANS CONSTRUCTION STRUCTURES ENGINEER TO PROVIDE AN ASSESSMENT OF THE DAMAGE AND RECOMMEND ANY NECESSARY REPAIRS. THE CONSTRUCTION STRUCTURES ENGINEER WILL ALSO DETERMINE IF THE DAMAGE WAS AVOIDABLE. IF THE CONTRACTOR IS DETERMINED BY THE ENGINEER TO BE AT FAULT FOR THE DAMAGE, THE RECOMMENDED REPAIRS SHALL BE COMPLETED BY THE CONTRACTOR AT NO COST TO THE STATE.
7. PRIOR TO RECLAIMING, ANY EXISTING SHOULDER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER WILL BE EXCAVATED TO THE DEPTH OF RECLAIMING OR AS DIRECTED BY THE ENGINEER. EXCAVATED MATERIAL WILL BE SPREAD ON THE ADJACENT SLOPES OR REMOVED FROM THE PROJECT AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR USING THE APPROPRIATE RENTAL ITEMS. THE METHOD OF REMOVAL AND THE USE OF RENTAL ITEMS SHALL BE APPROVED BY THE ENGINEER PRIOR TO ANY WORK BEING DONE. MATERIAL REMOVED SHALL BE REPLACED WITH ITEM 301.28 SUBBASE OF CRUSHED GRAVEL, FINE GRADED. FOR EXISTING SHOULDER RECONSTRUCTION DETAIL SEE SHEET 5.
8. THE FIRST RECLAIM PASS SHALL BE PERFORMED FROM TOP OF BANK TO TOP OF BANK WHERE FULL WIDTH IS NOT ACHIEVABLE. THIS WORK SHALL BE PAID UNDER ITEM 310.20 RECLAIMED STABILIZED BASE. THE SECOND PASS SHALL BE PERFORMED FULL WIDTH PER THE TYPICAL SECTION. THIS WORK SHALL BE PAID UNDER ITEM 900.675 SPECIAL PROVISION (RECLAIMED STABILIZED BASE, PORTLAND CEMENT).
9. AN ADDITIONAL QUANTITY OF ITEM 301.28 SUBBASE OF CRUSHED GRAVEL, FINE GRADED HAS BEEN INCLUDED TO CORRECT SUPERELEVATION AND GRADATION DEFICIENCIES WITHIN THE RECLAIMED SECTION.
10. ITEM 900.683 SPECIAL PROVISION (FOG SEAL SURFACE TREATMENT) SHALL BE APPLIED ON THE SURFACE OF THE RECLAIMED STABILIZED BASE, PORTLAND CEMENT AT THE RATE OF 0.15 GAL/SY OR AS DIRECTED BY THE ENGINEER.
11. FOR THE PURPOSES OF QUANTITY CALCULATION IT HAS BEEN ASSUMED ITEM 900.675 SPECIAL PROVISION (COLD MIXED RECYCLED BITUMINOUS PAVEMENT, PORTLAND CEMENT) WILL REQUIRE 4% BY WEIGHT OF ITEM 415.25 EMULSIFIED ASPHALT, COLD MIX. FOR THE SAME PURPOSE IT HAS ALSO BEEN ASSUMED 2% BY WEIGHT OF PORTLAND CEMENT WILL BE REQUIRED BY MIX DESIGN.
12. EMULSIFIED ASPHALT, TYPE CRS-1H, SHALL BE APPLIED AS A TACK COAT ON THE COLD MIXED RECYCLED PAVEMENT AT A RATE OF 0.04 TO 0.06 GAL/SY. EMULSIFIED ASPHALT TYPE CRS-1H OR RSI-H SHALL BE APPLIED AS A TACK COAT BETWEEN THE 1/2 INCH LEVELING COURSE AND THE 1 1/2 INCH WEARING COURSE OF SUPERPAVE BITUMINOUS CONCRETE PAVEMENT AT A RATE OF 0.025 TO 0.04 GAL/SY. THE SAME ITEM SHALL BE APPLIED TO COLD PLANED SURFACES AT A RATE OF 0.08 GAL/SY. ALL APPLICATIONS WILL BE PAID UNDER ITEM 900.683 SPECIAL PROVISION (EMULSIFIED ASPHALT) (RS-1H OR CRS-1H).
13. SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TOLERANCE = +/- 1/4 INCH. (TOTAL THICKNESS EXCLUDING LEVELING). SUBBASE OF CRUSHED GRAVEL, FINE GRADED TOLERANCE = +/- 1 INCH TOTAL SUBBASE THICKNESS.
14. THE PAVEMENT LEVELING COURSE AND WEARING COURSE SHALL BE SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IVS. LEVELING HAS BEEN INCLUDED TO RESHAPE THE ROADWAY PRIOR TO PAVING THE WEARING COURSE ALONG THE ENTIRE PROJECT. ALL ASPHALT CEMENT USED IN THE SUPERPAVE BITUMINOUS CONCRETE PAVEMENT SHALL BE AS SPECIFIED IN SUBSECTION 490.03(b).
15. EDGES OF PAVEMENT SHALL INCLUDE A SAFETY EDGE AS SHOWN ON SHEET 5.
16. ALL EDGES OF PAVEMENT SHALL BE BACKED UP TO FULL HEIGHT WITH AGGREGATE SHOULDERS, RAP AS DIRECTED BY THE ENGINEER AND WILL BE PAID FOR UNDER ITEM 402.13 AGGREGATE SHOULDERS, RAP.
17. ALL PAVED AND GRAVEL RESIDENTIAL AND COMMERCIAL DRIVES SHALL RECEIVE A PAVED APRON OF FOUR FEET, AND ALL FIELD DRIVES SHALL RECEIVE A 2 FOOT PAVED APRON UNLESS OTHERWISE SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. ANY AND ALL REQUIRED EXCAVATION IN DRIVE AREAS SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE NEW BITUMINOUS SURFACE SHALL BE CONSTRUCTED AS DIRECTED AND WILL BE PAID FOR UNDER ITEM 900.675, SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES). ALL OTHER BITUMINOUS MATERIALS PLACED WITHIN THE PROJECT LIMITS WHETHER BY HAND OR MECHANICAL METHODS SHALL BE PAID AS ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT.
18. A QUANTITY FOR ITEM 604.412, REHAB DI, CB OR MH, CLASS I HAS BEEN INCLUDED IN THE QUANTITIES TO BE USED AS DIRECTED BY THE ENGINEER. ALL DI'S SHALL BE RAISED OR REHABILITATED SUCH THAT THE NEW GRATE ELEVATION IS LEVEL WITH THE SURROUNDING TERRAIN.
19. AN ESTIMATED QUANTITY OF ITEM 619.17 YIELDING MARKER POSTS HAS BEEN INCLUDED TO DELINEATE PIPE INLETS, PIPE OUTLETS, UNDERDRAIN OUTLETS, AND DROP INLETS LOCATED OUTSIDE THE PAVEMENT SURFACE OR AS DIRECTED BY THE ENGINEER.
20. STEEL BEAM GUARDRAIL WITH STEEL POSTS SHALL BE USED ON THIS PROJECT.
21. 3' - 7" OF BACKING IS REQUIRED BEHIND THE FACE OF GUARDRAIL WITH 6 FOOT POSTS. IF THIS CANNOT BE OBTAINED THEN 8 FOOT POSTS SHALL BE USED. PAYMENT WILL BE MADE UNDER ITEM 621.20 STEEL BEAM GUARDRAIL, GALVANIZED, ITEM 621.205 STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS, ITEM 621.215 HD STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS, OR ITEM 621.216 HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED.
22. ESTIMATED QUANTITIES OF ITEMS 608.25 ALL PURPOSE EXCAVATOR RENTAL, TYPE I, ITEM 608.37 TRUCK RENTAL AND ITEM 608.40 LOADER RENTAL, TYPE I HAVE BEEN INCLUDED FOR THE PROVISION OF CONSTRUCTING GUARDRAIL END SECTION FLARES WITH EXCAVATED DITCHING MATERIAL. AN ESTIMATED QUANTITY OF ITEM 203.30 EARTH BORROW HAS BEEN INCLUDED IN THE CASE THAT THE DITCHING MATERIAL IS NOT SUITABLE TO USE IN THE GUARDRAIL END SECTION FLARE AREA. THE AMOUNT OF 25 CUBIC YARDS OF EARTH BORROW HAS BEEN ESTIMATED FOR EACH NEW GUARDRAIL END SECTION FLARE. ITEM 653.20 TEMPORARY EROSION MATTING SHALL BE PLACED ON ALL SLOPES CREATED BY THE GUARDRAIL END SECTION FLARE. THE QUANTITIES INCLUDED REFLECT 25 SY OF ITEM 653.20 TEMPORARY EROSION MATTING FOR EACH NEW GUARDRAIL END SECTION FLARE TO BE USED AS DIRECTED BY THE ENGINEER. PRIOR TO THE PLACEMENT OF TEMPORARY EROSION MATTING, THE AREA SHALL BE TOPSOILED AND SEEDED USING ITEM 651.35, TOPSOIL AND ITEM 651.15 SEED.
23. ITEMS 649.51 GEOTEXTILE FOR SILT FENCE AND 653.60 EROSION LOG SHALL BE USED AT THE DISCRETION OF THE ENGINEER.



COLD PLANE TYPICAL SECTION
ESSEX STA. 0+58.08 TO 11+71.00



RECLAIM TYPICAL SECTION
ESSEX STA. 11+71.00 TO 42+49.00
ESSEX STA. 42+61.00 TO 54+45.25
ESSEX STA. 55+29.25 TO 232+37.28
WESTFORD STA. 0+00.00 TO 68+85.12

TYPICAL ORDER OF OPERATIONS FOR RECLAIMED STABILIZED BASE WITH PORTLAND CEMENT PAVEMENT REHABILITATION

STEP	DESCRIPTION	PAYMENT ITEM(S)
1	COLD PLANE EXISTING BITUMINOUS CONCRETE PAVEMENT 6"	ITEM 210.10 COLD PLANING BITUMINOUS PAVEMENT
2	REPAIR EXISTING SHOULDERS AS DIRECTED BY THE ENGINEER	ITEM 301.28 SUBBASE OF CRUSHED GRAVEL, FINE GRADED
3	RECLAIM EXISTING ROAD BED 8" FROM TOP OF SLOPE TO TOP OF SLOPE USING WATER FOR STABILIZATION AND COMPACTION	ITEM 310.20 RECLAIMED STABILIZED BASE
4	CORRECT SUPERELEVATION DEFICIENCIES	ITEM 301.28 SUBBASE OF CRUSHED GRAVEL, FINE GRADED
5	PLACE PORTLAND CEMENT ON ROAD BED SURFACE AND RECLAIM ROAD BED 8", CURE, MICROCRACK AND APPLY FOG SEAL SURFACE TREATMENT	ITEM 900.675 SPECIAL PROVISION (RECLAIMED STABILIZED BASE, PORTLAND CEMENT), ITEM 900.680 SPECIAL PROVISION (PORTLAND CEMENT FOR BASE STABILIZATION) AND ITEM 900.683 SPECIAL PROVISION (FOG SEAL SURFACE TREATMENT)
6	PLACE 4" COLD MIXED RECYCLED BITUMINOUS PAVEMENT, PORTLAND CEMENT IN (2) 2" LIFTS	ITEM 900.675 SPECIAL PROVISION (COLD MIXED RECYCLED PAVEMENT, PORTLAND CEMENT)
7	PLACE 1/2" TYPE IVS LEVELING COURSE	ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT
8	PLACE 1½" TYPE IVS WEARING COURSE	ITEM 490.30 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT

NOTE: THIS LIST OF PROCEDURES FOR REHABILITATING THE EXISTING ROADBED ARE PRESENTED FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL PREPARE THEIR OWN SCHEDULE OF OPERATIONS TO COMPLETE THE PROPOSED WORK UTILIZING THE APPROPRIATE PAY ITEMS AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

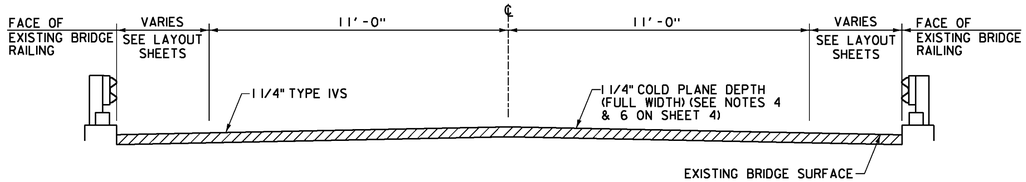
NOT TO SCALE

Stantec

PROJECT TYPICAL SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226pts01.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 4 OF 239



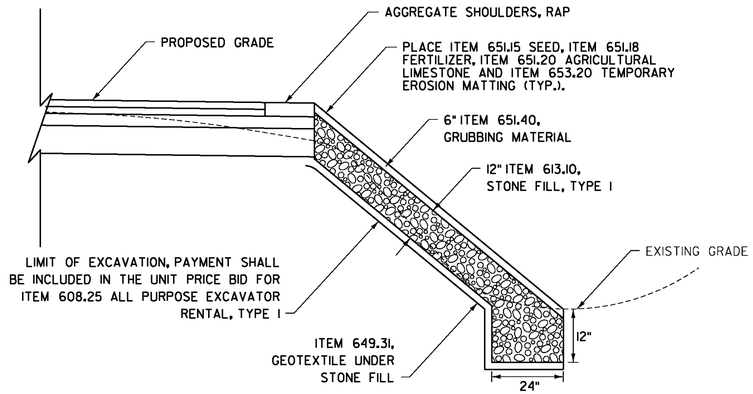
COLD PLANE TYPICAL SECTION - BRIDGE

BR#2 ESSEX STA. 42+49.00 TO 42+61.00
BR#3 ESSEX STA. 54+45.25 TO 55+29.25

ASPHALTIC PLUG JOINT LOCATIONS

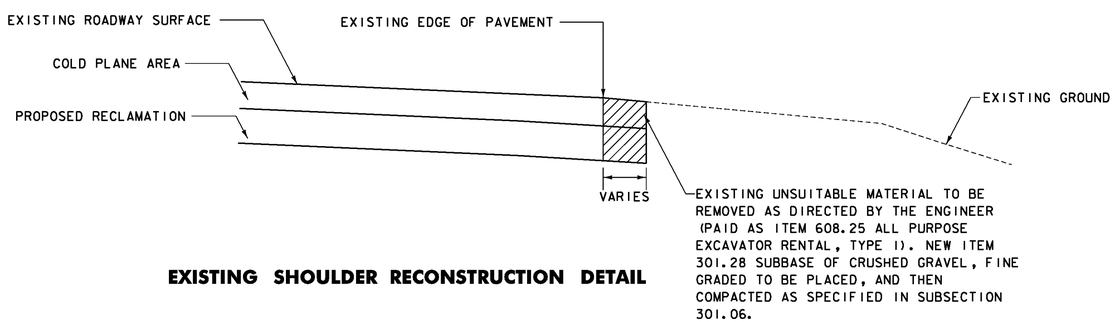
(SEE STRUCTURES DETAIL SD-516.10)

BR#3 ESSEX STA. 54+45 (22LF)
BR#3 ESSEX STA. 55+29 (22LF)

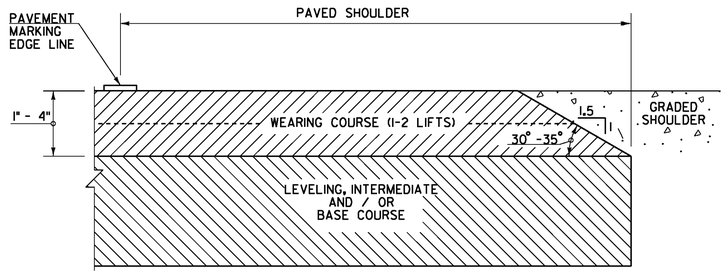


STONE FILL, TYPE I FOR SLOPE STABILIZATION DETAIL

NOTES:
1. STONE FILL TO BE PLACED ON SLOPES 1:1.5 OR STEEPER
2. SEE SHEETS 20-50 FOR LOCATIONS



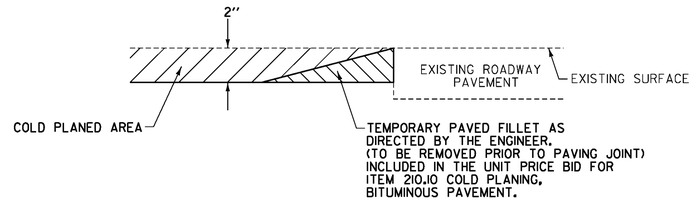
EXISTING SHOULDER RECONSTRUCTION DETAIL



SAFETY EDGE DETAIL

NOT TO SCALE

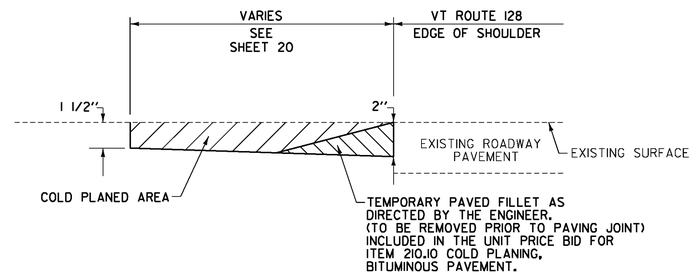
NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



DETAIL AT VERTICAL COLD PLANE JOINTS

NOTE: THIS DETAIL SHALL BE USED FOR THE LOCATION LISTED BELOW AS DIRECTED BY THE ENGINEER.

FULL ROADWAY WIDTH
ESSEX STA. 0+58.08 (BEGIN PROJECT)



COLD PLANE DETAIL AT SIDE ROADS

NOTE: THIS DETAIL SHALL BE USED FOR THE SIDE ROADS LISTED BELOW AS DIRECTED BY THE ENGINEER.

FULL ROADWAY WIDTH
ESSEX STA. 5+52, LT (BIXBY HILL ROAD TH-714)
ESSEX STA. 5+55, RT (ALDER LANE TH-718)

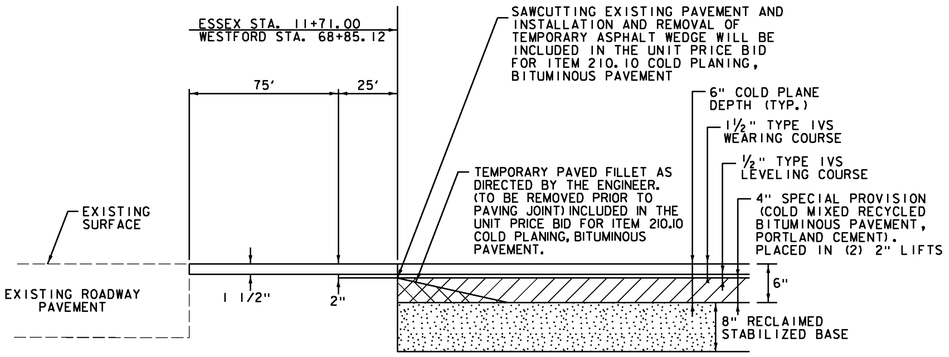
NOT TO SCALE

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PROJECT TYPICAL SHEET #2

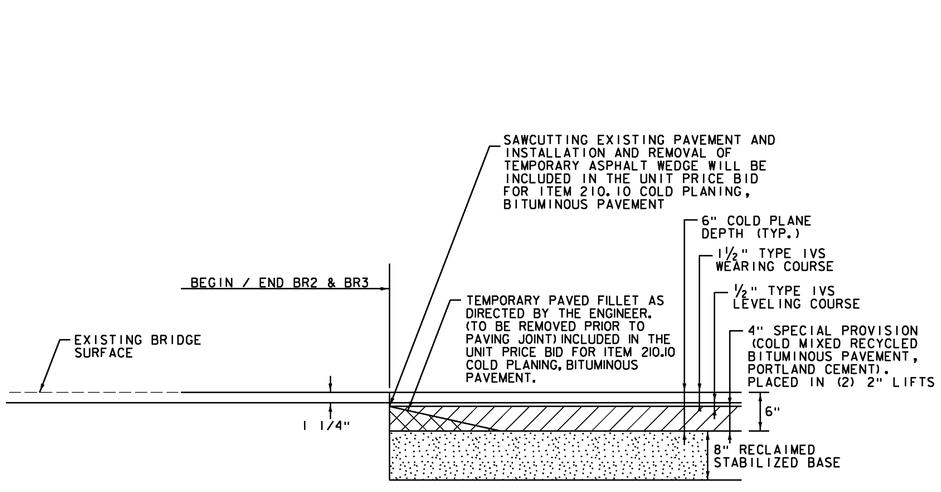
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226pts02.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
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SHEET 5 OF 239



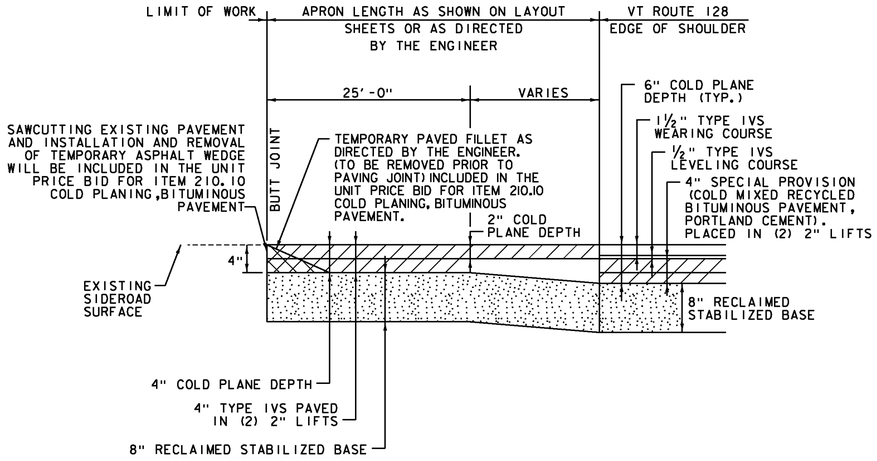
APPROACH AREA DETAIL

ESSEX STA. 11+71.00 - BEGIN RECLAMATION
WESTFORD STA. 68+85.12 - END PROJECT



BRIDGE APPROACH DETAIL

ESSEX STA. 42+49.00 - BEGIN BR2
ESSEX STA. 42+61.00 - END BR2
ESSEX STA. 54+45.25 - BEGIN BR3
ESSEX STA. 55+29.25 - END BR3



SIDE ROAD IN RECLAIM AREA DETAIL – TOWN HIGHWAYS
FULL WIDTH OF TOWN HIGHWAY

NOTE: THIS DETAIL SHALL BE USED FOR THE SIDE ROADS LISTED BELOW AS DIRECTED BY THE ENGINEER.

ESSEX
STA. 33+47, LT (THOMAS LANE TH-773)
STA. 37+63, RT (IRENE AVENUE TH-798)
STA. 66+03, RT (WEED ROAD TH-63)
STA. 111+13, RT (OSGOOD HILL ROAD TH-51)
STA. 206+73, LT (PETTINGILL ROAD TH-44)

SEEDING FORMULA

RATE: DOUBLE IF HYDROSEEDING

% WT.	LBS./A.	NAME	PUR %	GERM %
38	32	CREEPING RED FESCUE	98	90
29	24	SPARTAN HARD FESCUE	95	85
15	12	AZAY SHEEP'S FESCUE	95	87
15	12	ANNUAL RYE GRASS	95	90
3	--	INERTS	--	--
100.0	80 LB/A			

NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED ITEM 651.15: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER ITEM 651.18: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA)

AGRICULTURAL LIMESTONE ITEM 651.20: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH ITEM 651.25: TO BE PLACED ON THE EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL ITEM 651.35: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

NOT TO SCALE

Stantec

PROJECT TYPICAL SHEET #3

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226pts03.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 6 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

		ROADWAY	ROADWAY (NO FEDERAL/ STATE)	BRIDGE	FULL C.E.	GRAND TOTAL	UNIT	ITEMS	ITEM NO.	ROUND
		1				1	LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	-
		5				5	EACH	THINNING AND TRIMMING FOR SIGNS	201.31	-
		3				3	CY	COMMON EXCAVATION	203.15	0.6
		360				360	CY	SOLID ROCK EXCAVATION	203.16	10
		400				400	CY	EARTH BORROW	203.30	-
		940				940	CY	TRENCH EXCAVATION OF EARTH	204.20	12
		250				250	CY	TRENCH EXCAVATION OF ROCK	204.21	7
		1				1	CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-
		92600				92600	SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	918
		20550				20550	TON	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	301.28	201
		99100				99100	SY	RECLAIMED STABILIZED BASE	310.20	1019
		600				600	TON	AGGREGATE SHOULDERS, RAP	402.13	2
		1				1	LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-
		19600				19600	CWT	EMULSIFIED ASPHALT, COLD MIX	415.25	191
		10800				10800	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	490.30	144
		1				1	LU	AIR VOIDS PAY ADJUSTMENT (N.A.B.I.)	490.31	-
		1				1	LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	490.32	-
		1				1	LU	SURFACE TOLERANCE PAY ADJUSTMENT (N.A.B.I.)	490.33	-
		1				1	LU	LONGITUDINAL JOINT COMPACTION PAY ADJUSTMENT (N.A.B.I.)	490.34	-
				44		44	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	EST.
				25		25	LF	REMOVAL OF EXISTING BRIDGE RAILING	525.10	EST.
				100		100	CF	RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE	580.20	EST.
		3				3	EACH	REHAB. DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS I	604.412	-
			2			2	EACH	CHANGING ELEVATION OF SEWER MANHOLES	604.42	-
		5020				5020	LF	6 INCH UNDERDRAIN PIPE	605.10	43
		40				40	HR	POWER GRADER RENTAL	608.15	EST.
		700				700	HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST.
		30				30	HR	POWER BROOM RENTAL, TYPE I	608.30	EST.
		1400				1400	HR	TRUCK RENTAL	608.37	EST.
		30				30	HR	LOADER RENTAL, TYPE I	608.40	EST.
		2610				2610	CY	STONE FILL, TYPE I	613.10	30
		66				66	EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10	-
		9				9	EACH	RELOCATE MAILBOX, MULTIPLE SUPPORT	617.12	-
		10				10	SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10	1
		24				24	SF	DETECTABLE WARNING SURFACE	618.30	-
		80				80	EACH	YIELDING MARKER POSTS	619.17	-
		1450				1450	LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	11
		850				850	LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.205	17

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		COLD PLANING, BITUMINOUS PAVEMENT
89243	SY	MAINLINE
230	SY	BRIDGES
2209	SY	SIDE ROADS
918	SY	ROUNDING
92600	SY	TOTAL
		RECLAIMED STABILIZED BASE
96183	SY	MAINLINE
1898	SY	SIDE ROADS
1019	SY	ROUNDING
99100	SY	TOTAL
		SUPERPAVE BITUMINOUS CONCRETE PAVEMENT
7809	TON	MAINLINE (WEARING COURSE TYPE IVS)
183	TON	SIDE ROADS (WEARING COURSE TYPE IVS)
2664	TON	LEVELING (TYPE IVS)
144	TON	ROUNDING
10800	TON	TOTAL
		STONE FILL, TYPE I
153	CY	DITCH CLEANING
2427	CY	SLOPE STABILIZATION
30	CY	ROUNDING
2610	CY	TOTAL

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226qs01.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 7 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES						TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
		ROADWAY	ROADWAY (NO FEDERAL/ STATE)	BRIDGE	FULL C.E.	GRAND TOTAL	UNIT	ITEMS	ITEM NO.	ROUND	QUANTITIES	UNIT	ITEMS
		150				150	LF	HD STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.215	20			
		50				50	LF	HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED	621.216	-			
		16				16	EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	-			
		1550				1550	LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	20.5			
			8			8	EACH	ADJUST ELEVATION OF VALVE BOX	629.20	-			
		1000				1000	HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.			
		6250				6250	HR	FLAGGERS	630.15	EST.			
					1	1	LS	FIELD OFFICE, ENGINEERS	631.10	-			
					1	1	LS	TESTING EQUIPMENT, CONCRETE	631.16	-			
					1	1	LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-			
					3000	3000	DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-			
		1				1	LS	MOBILIZATION/DEMOBILIZATION	635.11	-			
		1				1	LS	TRAFFIC CONTROL	641.10	-			
		1				1	LS	PUBLIC RELATIONS OFFICER	641.12	-			
		4				4	EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	-			
								BEGIN OPTION AA					
		61000				61000	LF	DURABLE 4 INCH WHITE LINE, THERMOPLASTIC	646.402	613			
		61000				61000	LF	DURABLE 4 INCH WHITE LINE, EPOXY PAINT	646.403	613			
		61000				61000	LF	DURABLE 4 INCH WHITE LINE, POLYUREA	646.404	613			
								END OPTION AA					
								BEGIN OPTION BB					
		52500				52500	LF	DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC	646.412	557			
		52500				52500	LF	DURABLE 4 INCH YELLOW LINE, EPOXY PAINT	646.413	557			
		52500				52500	LF	DURABLE 4 INCH YELLOW LINE, POLYUREA	646.414	557			
								END OPTION BB					
								BEGIN OPTION CC					
		70				70	LF	DURABLE 8 INCH WHITE LINE, THERMOPLASTIC	646.442	10			
		70				70	LF	DURABLE 8 INCH WHITE LINE, EPOXY PAINT	646.443	10			
		70				70	LF	DURABLE 8 INCH WHITE LINE, POLYUREA	646.444	10			
								END OPTION CC					
								BEGIN OPTION DD					
		185				185	LF	DURABLE 24 INCH STOP BAR, THERMOPLASTIC	646.482	3			
		185				185	LF	DURABLE 24 INCH STOP BAR, EPOXY PAINT	646.483	3			
		185				185	LF	DURABLE 24 INCH STOP BAR, POLYUREA	646.484	3			
								END OPTION DD					

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PLOT DATE: 2/20/2013
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SHEET 8 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES						TOTALS		DESCRIPTIONS		
		ROADWAY	ROADWAY (NO FEDERAL/ STATE)	BRIDGE	FULL C.E.	GRAND TOTAL	UNIT	ITEMS	ITEM NO.	ROUND
								BEGIN OPTION EE		
		45				45	EACH	DURABLE LETTER OR SYMBOL, THERMOPLASTIC	646.492	-
		45				45	EACH	DURABLE LETTER OR SYMBOL, EPOXY PAINT	646.493	-
		45				45	EACH	DURABLE LETTER OR SYMBOL, POLYUREA	646.494	-
								END OPTION EE		
								BEGIN OPTION FF		
		130				130	LF	DURABLE CROSSWALK MARKING, THERMOPLASTIC	646.502	2
		130				130	LF	DURABLE CROSSWALK MARKING, EPOXY PAINT	646.503	2
		130				130	LF	DURABLE CROSSWALK MARKING, POLYUREA	646.504	2
								END OPTION FF		
		243900				243900	LF	TEMPORARY 4 INCH WHITE LINE, PAINT	646.602	2352
		209800				209800	LF	TEMPORARY 4 INCH YELLOW LINE, PAINT	646.612	2028
		250				250	LF	TEMPORARY 8 INCH WHITE LINE, PAINT	646.642	10
		740				740	LF	TEMPORARY 24 INCH STOP BAR, PAINT	646.682	12
		180				180	EACH	TEMPORARY LETTER OR SYMBOL, PAINT	646.692	-
		520				520	LF	TEMPORARY CROSSWALK MARKING, PAINT	646.702	8
		3450				3450	EACH	LINE STRIPING TARGETS	646.76	40
		8100				8100	SY	GEOTEXTILE UNDER STONE FILL	649.31	122
		4650				4650	SY	GEOTEXTILE FOR SILT FENCE	649.51	83
		1150				1150	LB	SEED	651.15	EST.
		7000				7000	LB	FERTILIZER	651.18	EST.
		30				30	TON	AGRICULTURAL LIMESTONE	651.20	EST.
		30				30	TON	HAY MULCH	651.25	EST.
		5600				5600	CY	TOPSOIL	651.35	EST.
		5250				5250	SY	GRUBBING MATERIAL	651.40	52
		5800				5800	SY	TEMPORARY EROSION MATTING	653.20	67
		13300				13300	LF	BARRIER FENCE	653.50	106
		13300				13300	LF	PROJECT DEMARCATION FENCE	653.55	106
		10400				10400	LF	EROSION LOG	653.60	125
		770				770	SF	TRAFFIC SIGNS, TYPE A	675.20	5.4
		200				200	LB	TUBULAR STEEL SIGN POST	675.33	10
		2365				2365	LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	25
		2				2	EACH	FOUNDATION FOR TUBULAR STEEL POST	675.43	-
		182				182	EACH	REMOVING SIGNS	675.50	-
		1				1	EACH	ERECTING SALVAGED SIGNS	675.60	-
		23				23	EACH	DELINEATOR WITH STEEL POST	676.10	-
		15				15	EACH	REMOVAL OF EXISTING DELINEATOR	676.12	-
		1				1	EACH	TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION	678.15	-

DETAILED SUMMARY OF QUANTITIES		
QUANTITIES	UNIT	ITEMS
		GEOTEXTILE UNDER STONE FILL
688	SY	DITCH CLEANING
7290	SY	SLOPE EROSION PREVENTION
122	SY	ROUNDING
8100	SY	TOTAL
		TEMPORARY EROSION MATTING
5333	SY	DITCH CLEANING
400	SY	GUARDRAIL END SECTIONS
67	SY	ROUNDING
5800	SY	TOTAL

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226qs03.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 9 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 4

SUMMARY OF ESTIMATED QUANTITIES						TOTALS	DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
		ROADWAY	ROADWAY (NO FEDERAL/ STATE)	BRIDGE	FULL C.E.	GRAND TOTAL	UNIT	ITEMS	ITEM NO.	ROUND	QUANTITIES	UNIT	ITEMS
		1				1	LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	-			
		6				6	EACH	SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)	900.620	-			
		2				2	EACH	SPECIAL PROVISION (SOIL BEARING SLIP BASE) (2 1/2")	900.620	-			
		105000				105000	SY	SPECIAL PROVISION (COLD MIXED RECYCLED BITUMINOUS PAVEMENT, PORTLAND CEMENT)	900.675	1011			
		1300				1300	SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675	14			
		105000				105000	SY	SPECIAL PROVISION (RECLAIMED STABILIZED BASE, PORTLAND CEMENT)	900.675	1011			
		25				25	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT SURFACE PREPARATION, TYPE 1)	900.680	-			
		33000				33000	TON	SPECIAL PROVISION (MATERIAL TRANSFER VEHICLE)	900.680	364			
		1600				1600	TON	SPECIAL PROVISION (PORTLAND CEMENT FOR BASE STABILIZATION)	900.680	29			
		400				400	TON	SPECIAL PROVISION (PORTLAND CEMENT FOR COLD MIXED RECYCLING)	900.680	7			
		1420				1420	CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT) (RS-1H OR CRS-1H)	900.683	17			
		1300				1300	CWT	SPECIAL PROVISION (FOG SEAL SURFACE TREATMENT)	900.683	5			

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226qs04.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 10 OF 239

ITEM DETAIL SUMMARY SHEET

LOCATION			GUARDRAIL						MISCELLANEOUS																REMARKS
BEGIN MILE STA.	END MILE STA.	POS.	621.20 S.B. G.R. GALV. LF	621.205 S.B.G.R. GALV. W/8' POSTS LF	621.215 HD S.B.G.R. GALV. W/8' POSTS LF	621.216 HD S.B.G.R. GALV./ NESTED LF	621.60 ANCHOR FOR S.B. RAIL EA	621.80 REMOVAL & DISPOSAL OF GUARDRAIL LF	203.15 COMMON EXCAVATION CY	203.16 SOLID ROCK EXCAVATION CY	203.30 EARTH BORROW CY	301.28 SUBBASE OF CRUSH. GRAV., FINE GRADED TON	402.13 AGGREGATE SHOULDERS, RAP TON	604.412 REHAB DI, CB, OR MH, CLASS I EA	613.10 STONE FILL, TYPE I CY	617.10 RELOC. MAILBOX, SINGLE SUPP. EACH	617.12 RELOC. MAILBOX, MULTI. SUPP. EACH	618.10 PORT. CEM. CONC. SIDEWALK, 5 INCH SY	618.30 DET. WARNING SURFACE SF	619.17 YIELDING MARKER POSTS EACH	649.31 GEOTEXTILE UNDER STONE FILL SY	653.20 TEMPORARY EROSION MATTING SY	676.10 DELINEATOR WITH STEEL POST EACH	676.12 REMOVAL OF EXIST. DELINEATOR EACH	
VT ROUTE 128																									
ESSEX-WESTFORD																									
0+58.08	68+85.12	LT&RT										20347	598	3	2427	66	9			80	7290				QUANTITIES FOR USE AS DIRECTED BY THE ENGINEER. FOR YIELDING MARKER POSTS AT UNDERDRAIN SEE SHEET 12, FOR STRUCTURE LOCATIONS SEE SHEET 17.
0+58.08	68+85.12	LT&RT													153						688	5333			QUANTITIES CARRIED FORWARD FROM DITCH CLEANING DETAIL SHEET. SEE SHEET 19.
ESSEX			144																						
2+67.5	4+67.5	RT	~~219~~				2	125.5			50											50	2	2	INSTALL ANCHOR @ STA. 2+67.5 & 4+67.5. SEE REDUCED GUARDRAIL POST SPACING DETAIL ON SHEET 14.
			191.5																						
3+41.5	5+41.5	LT	~~204~~				2	181			50											50	2	1	INSTALL ANCHOR @ STA. 3+41.5 & 5+41.5
5+99		LT							1.4			1.5						5	8						CONSTRUCT SIDEWALK RAMP, TYPE I
37+36		RT							0.5			0.5						2	8						CONSTRUCT SIDEWALK RAMP, TYPE I
37+44		LT							0.5			0.5						2	8						CONSTRUCT SIDEWALK RAMP, TYPE I
40+42.5	43+67.5	RT	304			25	2	126.5			50											50	2	2	INSTALL ANCHOR @ STA. 40+42.5 & 43+67.5, SEE DETAIL OF SBGR AT SMALL CULVERTS ON SHEET 14 AND SHEET 15 FOR PROPOSED BRIDGE RAIL WORK.
								187.5																	
41+42.5	44+67.5	LT	304			25	2	~~175.5~~			50											50	2	2	INSTALL ANCHOR @ STA. 41+42.5 & 44+67.5, SEE DETAIL OF SBGR AT SMALL CULVERTS ON SHEET 14 AND SHEET 15 FOR PROPOSED BRIDGE RAIL WORK.
53+43.5	54+43.5	RT	77		32.5		1	64.5			25											25	1	1	INSTALL ANCHOR @ STA. 53+43.5
53+43.5	54+43.5	LT	77		32.5		1	61.5			25											25	1	1	INSTALL ANCHOR @ STA. 53+43.5
55+31.0	56+31.0	RT	77		32.5		1	63			25											25	1	1	INSTALL ANCHOR @ STA. 56+31.0
			54																						
55+31.0	57+31.0	LT	~~177~~	100	32.5		1	62			25											25	1	1	INSTALL ANCHOR @ STA. 57+31.0
107+21.5	111+59.0	LT		441.5			2	255			50											50	2	2	INSTALL ANCHOR @ STA. 107+21.5 & 111+59.0
107+36.0	110+90.5	RT		391.5			2	290			50											50	2	2	INSTALL ANCHOR @ STA. 107+36.0 & 110+90.5
163+00	166+00	RT								117															LEDGE REMOVAL-SEE CROSS SECTIONS
173+70	178+80	RT																					7		INSTALL 14 WHITE DELINEATORS BACK TO BACK ON 7 POSTS SPACED 85 FEET APART
202+00	205+00	LT								114															LEDGE REMOVAL-SEE CROSS SECTIONS
WESTFORD																									
17+50	20+00	LT								119															LEDGE REMOVAL-SEE CROSS SECTIONS
55+38	56+63	LT						125																	EXISTING GUARDRAIL TO BE REMOVED
SHEET SUBTOTALS:			1439	833	130	50	16	1529.5	2.4	350	400	20349.5	598	3	2580	66	9	9	24	80	7978	5733	23	15	
ROUNDING:			11	17	20	-	-	20.5	0.6	10	-	200.5	2	-	30	-	-	1	-	-	122	67	-	-	
TOTALS:			1450	850	150	50	16	1550	3	360	400	20550	600	3	2610	66	9	10	24	80	8100	5800	23	15	

ITEM DETAIL SUMMARY SHEET

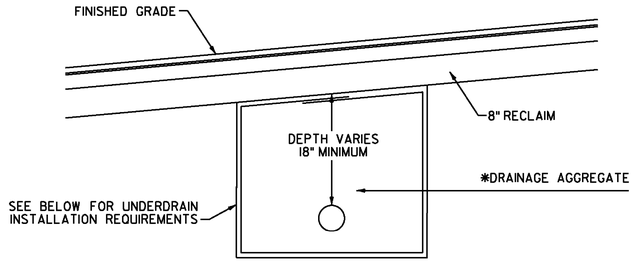
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226idss.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET II OF 239

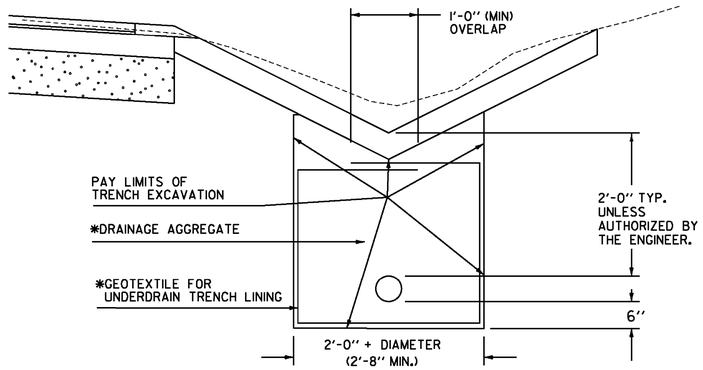
LOCATION					UNDERDRAIN				MISC. ITEMS		REMARKS
					204.20	204.21	605.10	619.17	*	*	
PIPE NO.	OUTLET INVERT	BEGIN STA.	END STA.	POS.	TRENCH EXCAVATION OF EARTH	TRENCH EXCAVATION OF ROCK	6 INCH UNDERDRAIN PIPE	YIELDING MARKER POSTS	DRAINAGE AGGREGATE	GEOTEXTILE FABRIC	
					CY	CY	LF	EA	CY	SY	
	VT ROUTE 128										
	ESSEX										
UD-1	473.2	11+71	16+40	LT	111	29	486	1	136	654	
UD-2	476.5	11+71	15+50	RT	90	23	396	1	110	530	
UD-3	475.6	19+20	21+25	LT	31	8	205	1	38	231	
UD-4	483.8	21+70	23+00	LT	26	7	130	1	32	164	
UD-5	484.0	25+00	28+35	RT	47	12	335	1	56	367	
UD-6	472.6	38+50	39+60	RT	21	6	110	1	26	136	
UD-7	483.4	65+50	67+50	LT	33	9	260	1	39	244	
UD-8	478.5	73+00	76+50	RT	78	20	350	1	96	467	
UD-9	475.8	80+50	84+70	RT	95	25	420	1	117	563	
UD-10	478.1	91+00	94+00	LT-RT	45	12	317	1	54	348	SEE PROJECT LAYOUT SHEETS FOR ALL UNDERDRAIN LOCATIONS
UD-11	473.9	135+50	140+00	LT	107	28	468	1	131	629	
UD-12	470.7	161+70	163+00	RT	22	6	130	1	27	153	
UD-13	458.4	214+50	218+80	RT	58	15	430	1	70	466	
UD-14	466.3	221+30	225+50	RT-LT	95	25	420	1	117	563	
	WESTFORD										
UD-15	470.0	26+80	32+00	LT-RT	69	18	520	1	83	560	
SUBTOTALS					928	243	4977	15	1132	6075	
ROUNDING					12	7	43	-	8	65	
TOTALS					940	250	5020	15**	1140	6140	

** TOTAL CARRIED FORWARD TO ITEM DETAIL SUMMARY SHEET - SEE SHEET 11



UNDERDRAIN CROSSING ROAD DETAIL

ESSEX STA. 91+00, LT TO STA. 94+00, RT
ESSEX STA. 221+30, RT TO STA. 225+50, LT
WESTFORD STA. 26+80, LT TO STA. 32+00, RT



DRAINAGE AGGREGATE SHALL MEET THE REQUIREMENTS OF SUBSECTION 704.16

*ITEMS ARE INCLUDED IN THE UNIT PRICE BID FOR PAY ITEM 605.10 6 INCH UNDERDRAIN PIPE

UNDERDRAIN DETAIL

NOT TO SCALE

NOTES:

1. GEOTEXTILE FOR UNDERDRAIN TRENCH LINING SHALL NOT BE PLACED AROUND UNDERDRAIN WHEN COVER ABOVE UNDERDRAIN IS LESS THAN 1 FOOT.
2. THE END OF THE UNDERDRAIN PIPE AT THE BEGINNING OF ALL UNDERDRAIN RUNS SHALL BE WRAPPED IN GEOTEXTILE FABRIC. PAYMENT FOR THIS WORK IS INCLUDED IN THE UNIT PRICE BID FOR ITEM 605.10 6 INCH UNDERDRAIN PIPE.

NOT TO SCALE

Stantec

UNDERDRAIN DETAIL SHEET

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226unds01.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 12 OF 239

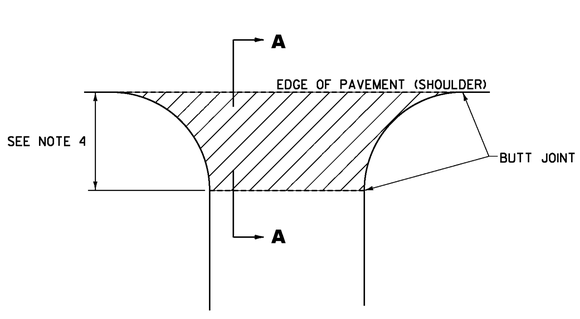
STATION	POSITION	QUANTITY (SY)
VT ROUTE 128		
ESSEX		
1+13	LT	14
2+26	RT	15
3+23	LT	11
7+22	RT	8
7+57	RT	10
8+83	LT	24
9+29	RT	18
11+46	LT	18
11+52	RT	9
18+77	RT	10
20+23	RT	13
21+27	RT	20
27+50	LT	12
28+02	LT	11
32+79	LT	5
35+63	RT	10
40+47	LT	9
48+11	RT	23
49+65	RT	14
53+30	RT	8
58+26	RT	5
58+41	LT	6
58+79	RT	6
59+37	RT	9
60+32	LT	8
61+20	LT	11
62+00	LT	8
62+30	RT	10
SUBTOTAL		325

STATION	POSITION	QUANTITY (SY)
VT ROUTE 128		
ESSEX (CONT.)		
64+53	RT	15
67+98	LT	12
67+98	RT	5
69+72	LT	10
71+77	LT	11
72+88	RT	7
75+06	LT	9
76+52	LT	8
79+24	RT	7
80+24	LT	12
81+39	LT	10
85+00	LT	10
87+47	LT	12
88+45	RT	10
92+29	LT	8
94+24	RT	10
94+98	RT	10
95+20	LT	7
96+81	RT	8
98+27	LT	12
99+26	RT	19
100+95	LT	8
101+80	LT	14
105+86	LT	15
106+28	RT	28
107+24	RT	9
111+69	LT	7
112+41	RT	14
SUBTOTAL		307

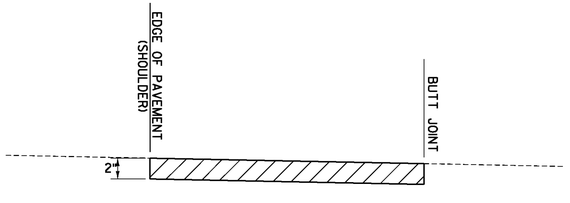
STATION	POSITION	QUANTITY (SY)
VT ROUTE 128		
ESSEX (CONT.)		
113+06	LT	20
122+00	RT	19
126+72	LT	11
130+56	LT	7
131+08	RT	7
132+27	RT	6
133+62	RT	8
134+99	LT	10
141+43	RT	9
147+47	RT	5
148+82	LT	6
151+08	RT	4
153+84	RT	12
154+05	LT	53
157+83	RT	9
160+90	RT	9
161+23	LT	11
164+14	LT	6
169+74	RT	14
174+69	LT	14
175+96	LT	12
180+32	RT	16
188+41	LT	15
206+01	RT	6
207+59	RT	13
208+79	LT	3
216+69	LT	8
SUBTOTAL		313

STATION	POSITION	QUANTITY (SY)
VT ROUTE 128		
ESSEX (CONT.)		
217+51	LT	7
218+88	LT	6
218+96	RT	11
220+44	LT	6
221+05	RT	9
221+51	LT	10
228+86	RT	11
SUBTOTAL		60

STATION	POSITION	QUANTITY (SY)
VT ROUTE 128		
WESTFORD		
0+22	RT	5
1+61	RT	10
3+87	RT	8
4+92	RT	8
6+00	LT	6
6+66	RT	14
8+53	RT	14
9+83	LT	10
12+68	RT	17
31+00	LT	91
32+50	RT	21
32+60	LT	25
39+48	LT	8
39+51	RT	4
46+36	LT	3
46+36	RT	3
50+99	RT	9
56+96	LT	11
58+45	RT	3
66+96	LT	8
67+40	RT	3
SUBTOTAL		281
COLUMN 1		325
COLUMN 2		307
COLUMN 3		313
COLUMN 4		60
COLUMN 5		281
SUBTOTAL		1286
ROUNDING		14
TOTAL		1300

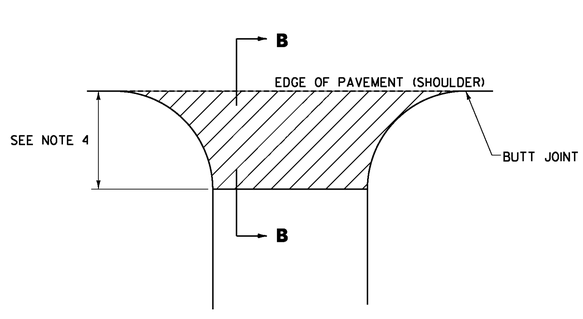


PLAN

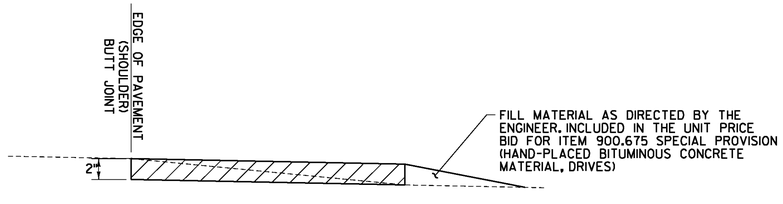


SECTION A–A

HANDWORK DETAILS FOR PAVED DRIVES



PLAN



SECTION B–B

HANDWORK DETAILS FOR GRAVEL DRIVES

NOTES:

1. PAVING LIFT SHALL BE A MINIMUM OF 1 1/2 " AND A MAXIMUM OF 2".
2. THE COST OF PROVIDING AND PLACING SUBBASE MATERIAL, CLEANING EXISTING PAVED SURFACES, INCLUDING POWER EQUIPMENT, FOR PROVIDING AND APPLYING EMULSION, FILLING JOINTS, CRACKS AND HOLES WILL NOT BE PAID DIRECTLY BUT WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.675 SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES).
3. EXCAVATION NEEDED TO ACHIEVE PROPER DRIVE SLOPES WILL NOT BE PAID DIRECTLY BUT WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.675 SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES).
4. FIELD DRIVES 2'-0"; RESIDENTIAL AND COMMERCIAL DRIVES 4'-0"; OR AS DIRECTED BY THE ENGINEER.

LEGEND

ITEM 900.675 SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)

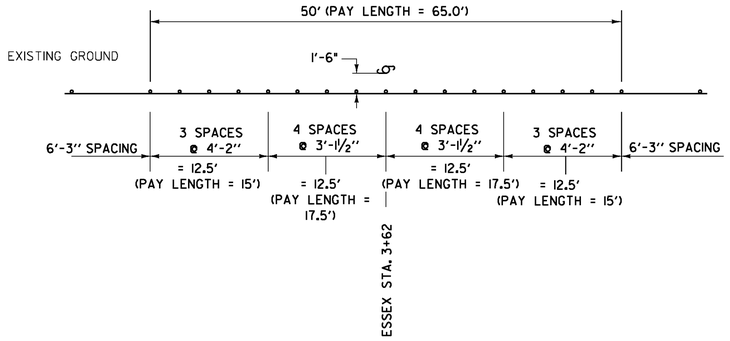
NOT TO SCALE

Stantec

DRIVE DETAIL SHEET

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

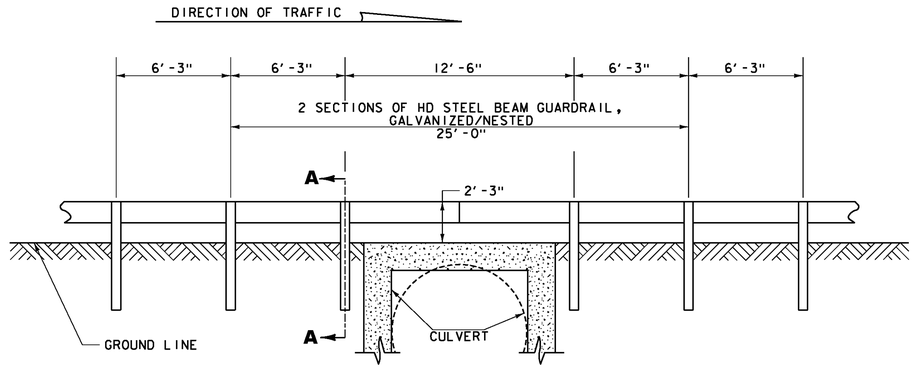
FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226ds01.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 13 OF 239



REDUCED GUARDRAIL POST SPACING DETAIL

LOCATION:

VT ROUTE 128 ESSEX STA. 3+62, RT - UTILITY POLE



DETAIL OF STEEL BEAM GUARDRAIL AT SMALL CULVERTS

ESSEX STA. 42+55, LT&RT (BRIDGE #2)

NOTES

1. SEE STANDARDS G-1 & G-1D FOR STEEL BEAM GUARDRAIL DETAILS.
2. THIS WORK SHALL BE PAID UNDER ITEM 621.216 HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED AT A PAY FACTOR OF 1.0.
3. THIS DETAIL TO BE USED AS INDICATED ON THE ITEM DETAIL SUMMARY SHEET OR AS DIRECTED BY THE ENGINEER.

NOT TO SCALE

Stantec

GUARDRAIL DETAIL SHEET

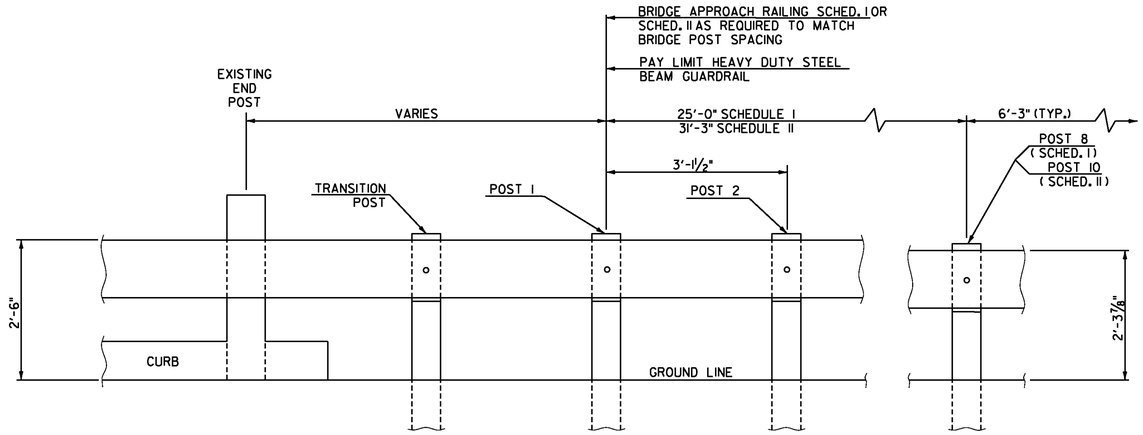
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226gds.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 14 OF 239

BRIDGE QUANTITY SHEET

STATION	POS.	BRIDGE NUMBER	OFFSET BLOCK	525.10 (LF)	REMARKS
LOCATION:					
ESSEX					
42+42.5 TO 42+67.5	LT	2	8"	12.5	REMOVE EXISTING BRIDGE RAIL, SEE SHEET II FOR PROPOSED GUARDRAIL TREATMENT.
42+42.5 TO 42+67.5	RT	2	8"	12.5	REMOVE EXISTING BRIDGE RAIL, SEE SHEET II FOR PROPOSED GUARDRAIL TREATMENT.
54+43.5 TO 55+31.0	LT	3	8"		RETAIN EXISTING BRIDGE RAIL
54+43.5 TO 55+31.0	RT	3	8"		RETAIN EXISTING BRIDGE RAIL
SUBTOTALS				25	
ROUNDING				-	
TOTAL				25	



SCHEDULE I

POST NO.	SPACING	PAYMENT FACTOR
1	3'-1½"	1.4 x 12'-6"
2	3'-1½"	
3	3'-1½"	
4	3'-1½"	
5	4'-2"	1.2 x 12'-6"
6	4'-2"	
7	4'-2"	
8	6'-3" (TYP.)	1.0 (TYP.)
9		
TOTAL PAY LENGTH = 32' - 6"		

SCHEDULE II

POST NO.	SPACING	PAYMENT FACTOR
1	3'-1½"	1.4 x 18'-9"
2	3'-1½"	
3	3'-1½"	
4	3'-1½"	
5	3'-1½"	
6	3'-1½"	
7	4'-2"	1.2 x 12'-6"
8	4'-2"	
9	4'-2"	
10	6'-3" (TYP.)	1.0 (TYP.)
11		
TOTAL PAY LENGTH = 41' - 3"		

SCHEDULE I APPROACH RAILING SHALL BE USED WHEN A RAIL PANEL SPLICE OCCURS AT POST NO. 1.
SCHEDULE II APPROACH RAILING SHALL BE USED WHEN A RAIL PANEL SPLICE OCCURS AT THE BRIDGE END POST.

BRIDGE APPROACH RAILING

GENERAL NOTES

1. SEE VAOT STANDARDS G-1 AND G-1d FOR ADDITIONAL DETAILS.
2. BRIDGE APPROACH RAILING HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY GUARDRAIL HEIGHT IN 25'.
3. APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM GUARDRAIL, GALVANIZED FOR 25' FROM THE ENDS OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE ENGINEER.
4. FOR BRIDGE RAILING, THE TRANSITION POST SHALL HAVE AN OFFSET BLOCK AND BE LOCATED AS CLOSE AS PRACTICABLE TO THE MIDPOINT BETWEEN THE BRIDGE END POST AND APPROACH RAILING POST 1.
5. SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
6. SEE STANDARD SHEET G-1 FOR CONNECTION OF STEEL BEAM TO OFFSET BLOCK AND OFFSET BLOCK TO BRIDGE POST.
7. SEE STANDARD SHEET G-1 FOR DELINEATION DETAILS AND PLACEMENT.
8. ERECT DELINEATORS ON EVERY FIFTH POST OR APPROXIMATELY 31'-3" APART. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
9. ALL HEAVY DUTY STEEL BEAM BRIDGE RAILING, OFFSET BLOCKS AND RELATED HARDWARE SHALL BE PAID FOR UNDER THE APPROPRIATE BRIDGE RAILING ITEMS AS DENOTED IN THE PLANS.
10. ALL STEEL POSTS, PLATES, OFFSET BLOCKS AND FIXTURES SHALL BE PROVIDED IN ACCORDANCE WITH SUBSECTION 732.04 , UNLESS OTHERWISE NOTED, AND SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SUBSECTION 726.08.
11. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.

NOT TO SCALE

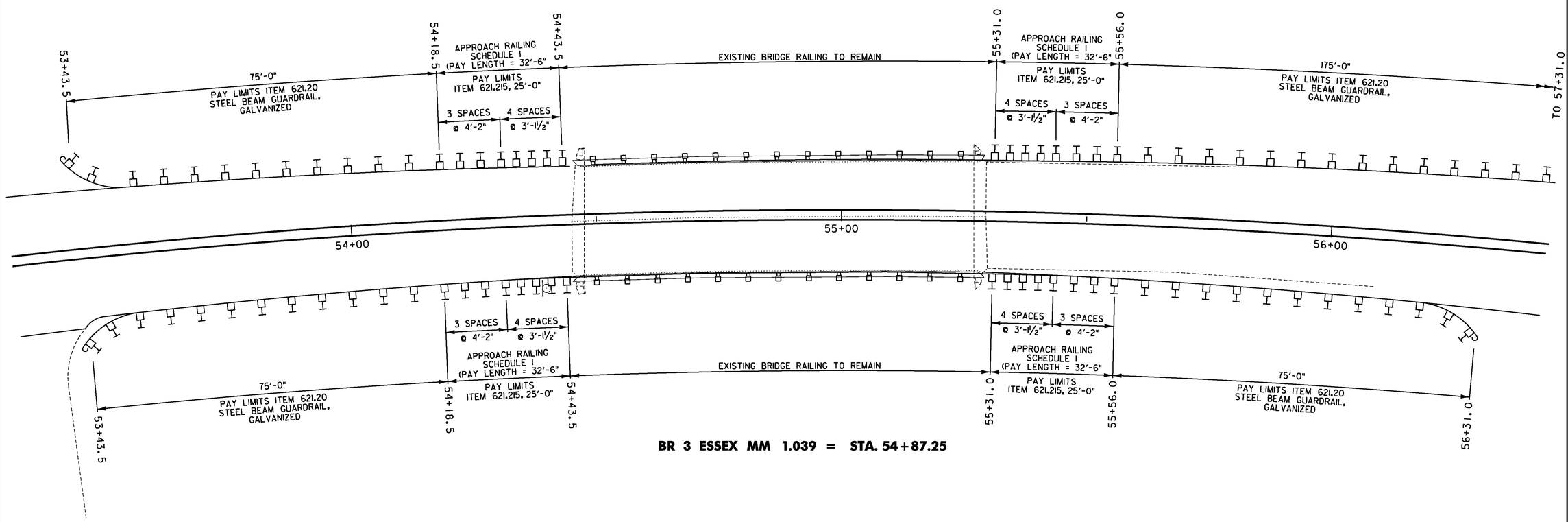
Stantec

BRIDGE DETAIL SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226bds01.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 15 OF 239



BR 3 ESSEX MM 1.039 = STA. 54+87.25

NOT TO SCALE

Stantec

BRIDGE DETAIL SHEET #2

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226bds02.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 16 OF 239

EXISTING CULVERT INVENTORY TABLE
(PROVIDED FOR INFORMATIONAL PURPOSES ONLY)

INVERT IN				INVERT OUT					
STATION	POSITION	OFFSET FROM HCL	ELEVATION	STATION	POSITION	OFFSET FROM HCL	ELEVATION	PIPE SIZE	MATERIAL
VT ROUTE 128									
ESSEX									
4+11.5	LEFT	31.0	461.91	3+99.0	RIGHT	22.0	460.54	192	CMP (BRIDGE 1)
18+23.4	RIGHT	27.6	468.82	18+26.1	LEFT	25.4	468.43	36	CMP
24+00.0	RIGHT	27.1	480.63	24+01.0	LEFT	26.5	479.68	18	CMP
31+09.4	RIGHT	18.7	488.99	31+08.6	LEFT	22.0	488.19	15	CMP
65+27.0	RIGHT	46.5	477.5	64+81.2	LEFT	29.5	475.12	18	CPEP-SL
77+23.0	RIGHT	21.3	473.01	77+28.1	LEFT	28.6	472.62	30	CMP
86+66.6	RIGHT	20.7	473.45	86+67.9	LEFT	19.5	472.86	18	CPEP-SL
95+65.0	RIGHT	18.1	479.93	95+64.0	LEFT	23.8	479.30	24	CMP
103+84.0	RIGHT	18.0	488.71	103+83.3	LEFT	22.5	488.11	18	CPEP-SL
109+17.0	RIGHT	42.9	-	109+00.0	LEFT	31.3	-	9.5'x6'	CONC. BOX
118+30.0	RIGHT	39.4	495.60	118+31.1	LEFT	42.6	493.41	24	CPEP
125+19.7	RIGHT	19.7	498.88	125+19.6	LEFT	20.7	497.98	18	CPEP-SL
134+19.7	LEFT	16.8	498.51	134+20.4	RIGHT	19.3	497.24	15	CMP
145+55.9	RIGHT	30.2	462.35	145+44.6	LEFT	32.1	461.72	48X60	CMP
159+07.8	RIGHT	20.8	469.81	159+09.9	LEFT	19.8	469.01	18	CMP
161+63.0	RIGHT	21.6	473.50	161+62.5	LEFT	18.7	473.29	18	CPEP-SL
164+36.7	RIGHT	13.4	476.43	164+39.0	LEFT	27.3	474.77	15	CMP
167+93.1	RIGHT	19.5	476.65	167+93.5	LEFT	27.8	474.35	18	CMP
185+80.0	LEFT	23.2	454.82	185+89.2	RIGHT	26.4	454.16	24	CPEP
188+69.3	LEFT	20.2	458.54	188+51.9	RIGHT	17.9	457.15	18	CPEP-SL
207+37.0	RIGHT	34.0	450.26	207+61.5	LEFT	28.7	450.16	24	CPEP-SL
213+88.7	RIGHT	37.8	451.19	214+21.4	LEFT	48.6	450.67	24	CMP
225+52.1	RIGHT	15.9	467.40	225+52.5	LEFT	19.5	466.44	12	CMP
WESTFORD									
1+41.2	RIGHT	20.2	454.03	1+40.5	LEFT	26.0	452.87	18	CMP
4+06.1	LEFT	27.2	454.80	4+11.7	RIGHT	23.5	454.44	18	CPEP
8+94.6	RIGHT	26.0	457.16	8+92.6	LEFT	27.5	456.52	24	CMP
13+19.2	RIGHT	26.1	457.62	12+77.6	LEFT	35.1	456.82	30x42	CMP
26+43.1	RIGHT	21.4	470.48	26+42.9	LEFT	27.5	469.06	18	CMP
42+12.3	RIGHT	21.0	456.39	42+14.6	LEFT	28.5	454.66	15	CMP
44+73.1	RIGHT	21.3	458.95	44+71.1	LEFT	31.0	456.43	18	CPEP-SL
49+13.5	RIGHT	23.9	461.99	49+13.1	LEFT	28.5	461.37	18	CPEP-SL
58+59.2	RIGHT	21.0	506.76	58+57.4	LEFT	31.0	504.02	18	CPEP-SL

REHAB. DI'S, CB'S or MH'S, CLASS I OR II
(ITEM 604.412)

STATION	POSITION	DESCRIPTION
ESSEX		
2+34	RT	DI
~~4+91~~	~~LT~~	~~DI~~
6+01	LT	DI

CHANGING ELEVATION OF SEWER MANHOLES
(ITEM 604.42)
(NON-PARTICIPATING)

STATION	POSITION	DESCRIPTION
ESSEX		
2+06	RT	SMH
5+85	LT	SMH
3+67	RT	SMH

ADJUST ELEVATION OF VALVE BOX
(ITEM 629.20)
(NON-PARTICIPATING)

STATION	POSITION	DESCRIPTION
ESSEX		
1+43	LT	WSO
2+05	LT	WSO
5+52	RT	WSO
5+58	RT	WSO
5+84	RT	WSO
5+90	LT	WSO
5+91	RT	WSO
6+83	RT	WSO

UTILITIES
TO BE ADJUSTED BY OTHERS

STATION	POSITION	DESCRIPTION
ESSEX		
0+84	RT	TMH
3+39	LT	GSO
3+42	LT	GSO
5+17	LT	GSO
5+18	LT	GSO

NOT TO SCALE

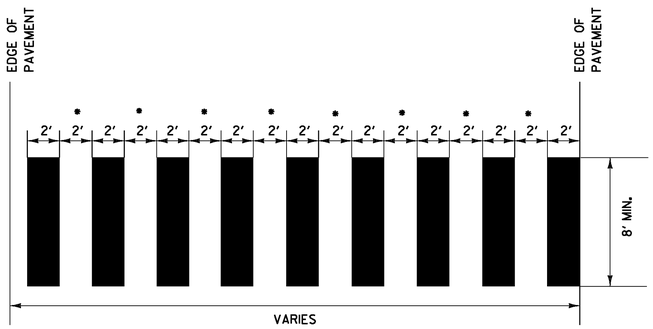
Stantec

CULVERT & STRUCTURE INVENTORY SHEET

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226csd.i

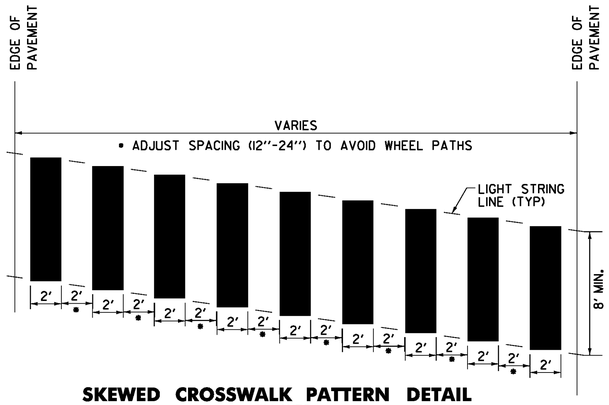
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 17 OF 239



• ADJUST SPACING (12"-24") TO AVOID WHEEL PATHS

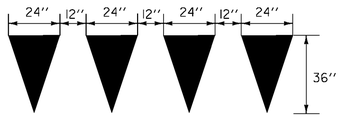
BLOCK PATTERN CROSSWALK DETAIL

SEE LAYOUT SHEETS FOR LOCATIONS.
ALL BLOCK PATTERN CROSS WALKS SHALL BE INSTALLED PARALLEL WITH WHEEL PATHS.



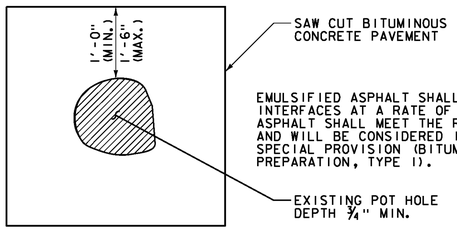
SKEWED CROSSWALK PATTERN DETAIL

• 11' LANES



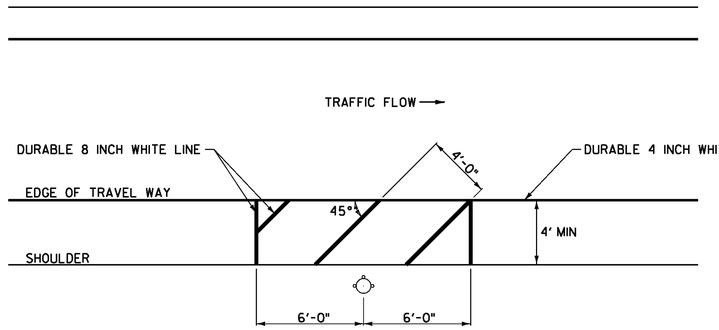
YIELD LINE DETAILS

TO BE INSTALLED ONLY AT THE DIRECTION OF THE ENGINEER TO BE PAID AS ONE DURABLE LETTER OR SYMBOL, PER TRIANGLE



TYPICAL – POT HOLE REPAIR

SEE NOTE 5 ON SHEET 4.

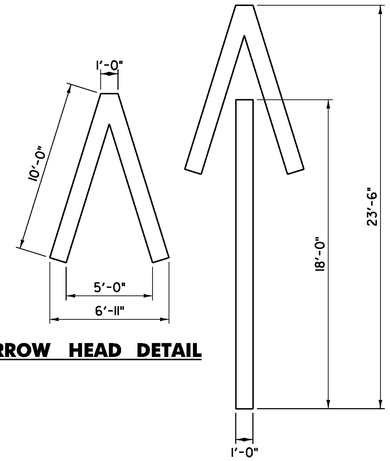


FIRE HYDRANT PAVEMENT MARKING DETAIL

ESSEX:
STA. 2+37, LT
STA. 6+85, RT
STA. 34+15, LT

NOTE:

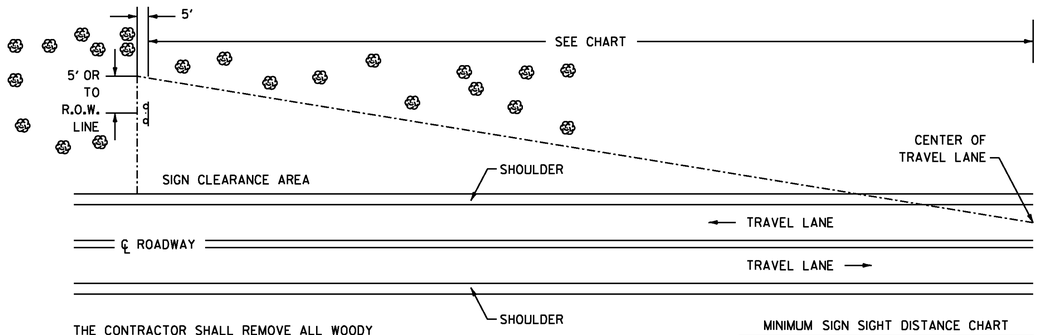
THE CONTRACTOR SHALL ADJUST THE PLACEMENT OF THE FIRE HYDRANT PAVEMENT MARKINGS TO MEET THE EXISTING SITE CONSTRAINTS AS DIRECTED BY THE ENGINEER.



ARROW HEAD DETAIL

WRONG WAY ARROW

ESSEX:
STA. 110+75, RT



THE CONTRACTOR SHALL REMOVE ALL WOODY STEMMED GROWTH INCLUDING BRUSH, SAPLINGS, TREE LIMBS GROWING WITHIN OR PROJECTING INTO THE CLEARANCE AREA AND DOWN TO GROUND LEVEL OR AT LEAST 10 FT BELOW THE BOTTOM OF THE SIGN. PAYMENT WILL BE FOR THINNING AND TRIMMING FOR SIGNS, ITEM 201.31, AND PAID FOR PER EACH. NO CHEMICALS (POISONS OR DEFOLIANTS) ALLOWED.

MINIMUM SIGN SIGHT DISTANCE CHART

APPROACH SPEED (mph)	SIGHT DISTANCE (feet)
30 OR LESS	300
35	350
40	400
45	450
50	500
55	550

THINNING AND TRIMMING FOR SIGNS DETAIL

ESSEX STA. 7+88, RT
ESSEX STA. 13+20, RT
ESSEX STA. 65+00, LT
ESSEX STA. 103+50, RT
WESTFORD STA. 66+17, RT

NOT TO SCALE

NOTE:
DURABLE MARKINGS DETAILED ON THIS SHEET ARE OPTION BID ITEMS. SEE SHEETS 8 & 9

Stantec

MISCELLANEOUS DETAIL SHEET

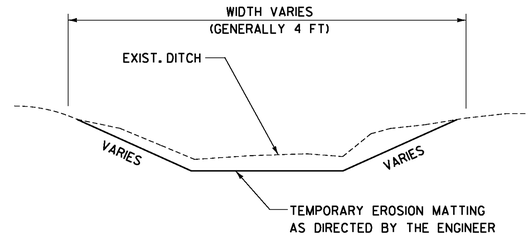
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226md.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 18 OF 239

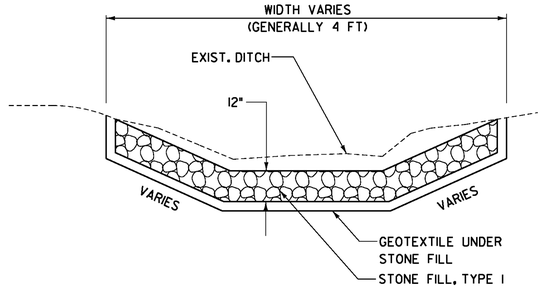
LOCATION				FEET OF DITCHING		MISCELLANEOUS ITEMS				REMARKS
						613.10	649.31	651.15	653.20	
SITE	STATION	STATION	POS.	PERCENT GRADE		STONE FILL, TYPE I	GEOT. UNDER STONE FILL	SEED	TEMP. EROS. MATT.	
				0-2.5	≥2.5					
ESSEX						CY	SY	LB	SY	
VT ROUTE 128										
1	5+88	6+28	RT	40				**	18	
2	52+80	54+44	LT	164				**	73	
3	58+48	60+24	LT	176				**	78	
4	60+39	61+11	LT	72				**	32	
5	61+32	61+91	LT	59				**	26	
6	62+07	63+50	LT	143				**	64	
7	65+50	67+87	LT	237				**	105	
8	68+10	69+25	RT	115				**	51	
9	74+45	76+45	RT	200				**	89	
10	87+12	88+12	RT	100				**	44	
11	89+76	90+01	RT	25				**	11	
12	95+07	96+72	RT	165				**	73	
13	96+88	99+04	RT	216				**	96	
14	99+44	100+04	RT	60				**	27	
15	100+32	100+57	RT	25				**	11	
16	127+25	127+50	RT	25				**	11	
17	142+56	147+40	RT	484				**	215	
18	147+53	151+00	RT	347				**	154	
19	151+17	153+12	RT	195				**	87	
20	200+64	206+62	LT	598				**	266	
21	207+26	208+72	LT	146				**	65	
24	221+76	228+73	RT		697	103	465			
22	228+97	232+32	RT		335	50	223			
SUBTOTALS				3592	1032	153	688	**	1596	

LOCATION				FEET OF DITCHING		MISCELLANEOUS ITEMS				REMARKS
						613.10	649.31	651.15	653.20	
SITE	STATION	STATION	POS.	PERCENT GRADE		STONE FILL, TYPE I	GEOT. UNDER STONE FILL	SEED	TEMP. EROS. MATT.	
				0-2.5	≥2.5					
WESTFORD						CY	SY	LB	SY	
VT ROUTE 128										
1	0+00	5+93	LT	593				**	264	
2	0+35	1+49	RT	114				**	51	
3	1+72	3+80	RT	208				**	92	
4	3+97	4+83	RT	86				**	38	
5	4+98	6+53	RT	155				**	69	
6	6+06	9+74	LT	368				**	164	
7	6+80	8+37	RT	157				**	70	
8	8+68	12+50	RT	382				**	170	
9	9+95	15+74	LT	579				**	257	
10	21+28	25+50	LT	422				**	188	
11	28+88	32+27	RT	339				**	151	
12	32+71	39+43	RT	672				**	299	
13	32+85	39+39	LT	654				**	291	
14	39+57	43+50	LT	393				**	175	
15	39+59	46+28	RT	669				**	297	
16	46+43	48+50	LT	207				**	92	
17	46+43	50+88	RT	445				**	198	
18	54+00	58+38	RT	438				**	195	
19	62+00	66+85	LT	485				**	216	
20	58+51	68+85	RT	1034				**	460	
COLUMN 1 SUBTOTALS:				3592	1032	153	688	**	1596	
COLUMN 2 SUBTOTALS:				8400				**	3737	
DITCHING TOTALS				11992	1032	153*	688*	**	5333*	

*TOTALS CARRIED FORWARD TO THE ITEM DETAIL SUMMARY SHEET. (SEE SHEET 11)
**QUANTITIES FOR ITEM 651.15 SEED ARE INCLUDED IN THE TOTAL ON SHEET 9.



DITCH DETAIL 0 – 2.5 PERCENT



DITCH DETAIL ≥ 2.5 PERCENT

NOTES:

1. PIPE INLET AND OUTLET AREAS AND DITCH CLEANING THROUGHOUT THE PROJECT SHALL BE PERFORMED AT LOCATIONS IDENTIFIED ON THIS SHEET AND AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE UNDER THE APPLICABLE EQUIPMENT RENTAL ITEM(S).

2. GRADES BETWEEN 0 AND 2.5 PERCENT SHALL USE ITEM 651.15, SEED AND EITHER ITEM 651.25, HAY MULCH OR ITEM 653.20, TEMPORARY EROSION MATTING AS DIRECTED BY THE ENGINEER. GRADES 2.5 PERCENT OR GREATER SHALL USE ITEM 649.31, GEOTEXTILE UNDER STONE FILL AND ITEM 613.10, STONE FILL TYPE I AS DIRECTED BY THE ENGINEER.

NOT TO SCALE

Stantec

DITCH CLEANING DETAIL SHEET

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226dcs.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 19 OF 239

REHAB, Dis, CBs OR MHs, CLASS I
STA. 2+34, RT

CHANGING ELEVATION OF SEWER MANHOLES (NON-PARTICIPATING)
STA. 2+06, RT

ADJUST ELEVATION OF VALVE BOX (NON-PARTICIPATING)
STA. 1+43, LT
STA. 2+05, LT

STEEL BEAM GUARDRAIL, GALVANIZED
STA. ~~2+67.5 TO 3+50.0,~~ RT3+05 TO 3+50.0
STA. ~~3+41.5 TO 3+50.0, LT~~

ANCHOR FOR STEEL BEAM RAIL
STA. 2+67.5, RT
STA. 3+41.5, LT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 3+21.0 TO 3+50.0, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 0+40 TO 3+50, SOLID LT
STA. 0+79 TO 3+50, SOLID RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 1+07 TO 3+50, SOLID LT & RT

DURABLE 8 INCH WHITE LINE
STA. 2+37, LT (HYDRANT)
SEE DETAIL SHEET 18

DURABLE 24 INCH STOP BAR
STA. 1+07, LT

DURABLE CROSSWALK MARKING
STA. 0+93, LT TO 1+03, RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 0+40 TO 3+50, SOLID LT
STA. 0+79 TO 3+50, SOLID RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 1+07 TO 3+50, SOLID LT & RT

TEMPORARY 8 INCH WHITE LINE, PAINT
STA. 2+37, LT (HYDRANT)
SEE DETAIL SHEET 18

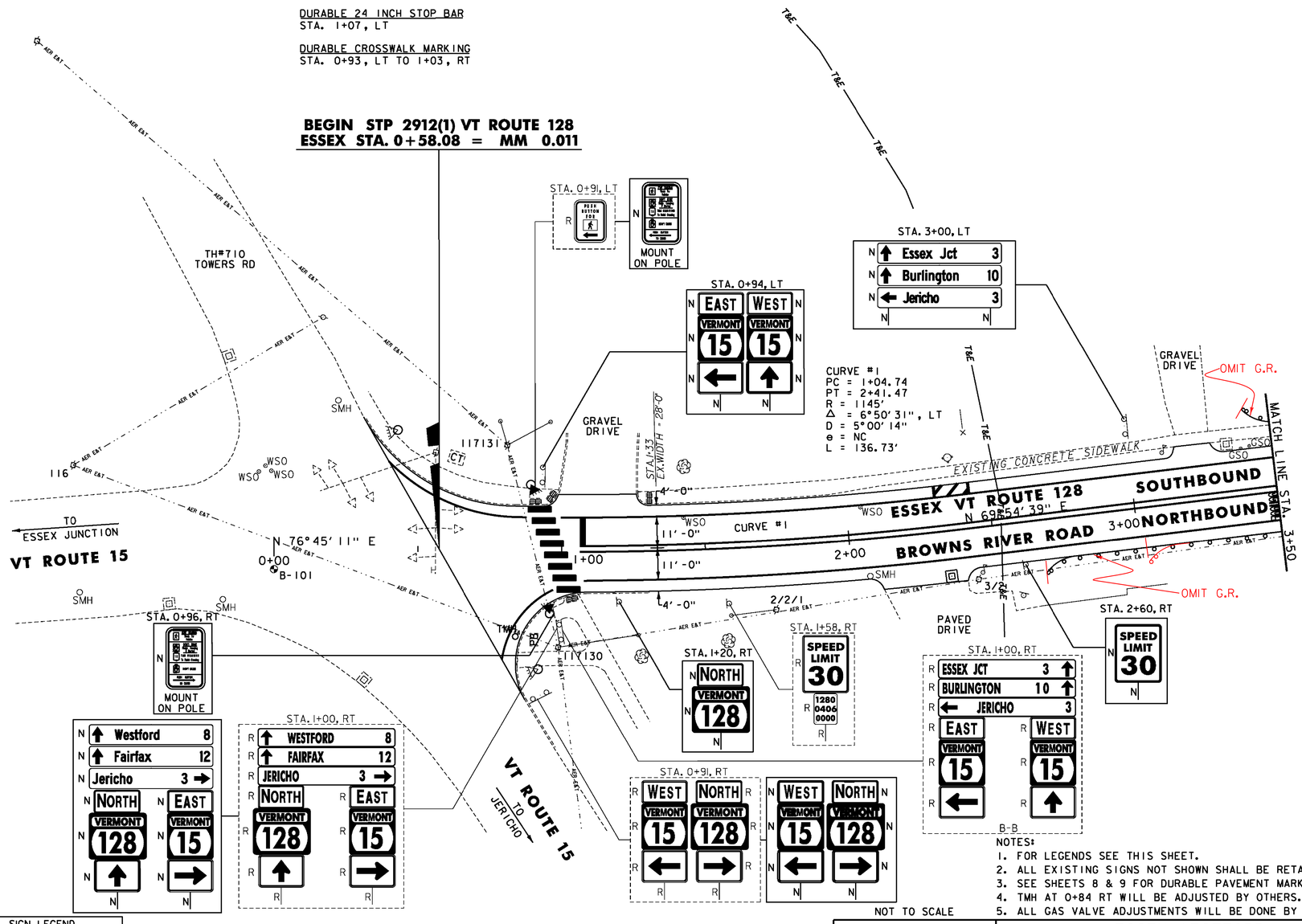
TEMPORARY 24 INCH STOP BAR, PAINT
STA. 1+07, LT

TEMPORARY CROSSWALK MARKING, PAINT
STA. 0+93, LT TO 1+03, RT

REMOVING SIGNS
AS SHOWN - 27

N
VT STATE PLANE GRID

BEGIN STP 2912(1) VT ROUTE 128
ESSEX STA. 0+58.08 = MM 0.011



NOTES:
1. FOR LEGENDS SEE THIS SHEET.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.
4. TMH AT 0+84 RT WILL BE ADJUSTED BY OTHERS.
5. ALL GAS VALVE ADJUSTMENTS WILL BE DONE BY OTHERS.

NOT TO SCALE

GENERAL LEGEND

— T&E —	= ENVIRONMENTAL, HABITAT AREA
—HISTORIC DIST—	= MAPPING, HISTORICAL, BUILDING CORNERS
	= ENVIRONMENTAL, WETLAND, COMBINED (FED/STATE)
— ARCH —	= LANDSCAPE AREA, ARCHEOLOGICAL SITE
WSO	= EXISTING WATER SHUT OFF
GSO	= EXISTING GAS SHUT OFF
TMH	= EXISTING TELEPHONE MANHOLE
SMH	= EXISTING SEWER MANHOLE
	= PROPOSED TRUNCATED DOMES
	= EXISTING TRUNCATED DOMES
	= EXISTING HYDRANT
	= PROPOSED PEDESTRIAN SIGNAL HEADS
	= EXISTING PEDESTRIAN SIGNAL HEADS
	= PROPOSED DI
	= EXISTING DI
	= EXISTING UTILITY POLE
	= EXISTING UTILITY POLE W/ GUY WIRE
	= PROPOSED GUARDRAIL
	= EXISTING GUARDRAIL
	= EXISTING PIPE
	= EXISTING HEADWALL
	= PROPOSED UNDERDRAIN
	= SOIL BORING
	= EXISTING MAILBOX
UD-2	= UNDERDRAIN NOTE NUMBER
	= SINGLE SIGN POST - SINGLE SIGN
	= SINGLE SIGN POST - MULTIPLE SIGNS
	= DOUBLE SIGN POST
	= EXISTING TREE
	= EXISTING TREE LINE
	= EDGE OF WATER
	= EXISTING LEDGE
-x——x	= EXISTING FENCE
— AER E&T —	= EXISTING AERIAL ELECTRIC & TELEPHONE WIRE

SIGN LEGEND

N	= NEW
R	= REMOVE
S	= SALVAGED
RET	= RETAIN
B-B	= BACK TO BACK
Ⓣ	= RETURN TO THE TOWN OF ESSEX

PROPOSED STONE FILL, TYPE I AREAS
SEE SHEET 5 FOR DETAILS
SEE SHEETS 20-50 FOR LOCATIONS

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-101	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l01.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 20 OF 239

THINNING AND TRIMMING FOR SIGNS
STA. 7+88, RT

REHAB. Dis. CBs OR MHs. CLASS I
~~STA. 4+91, LT~~
STA. 6+01, LT

CHANGING ELEVATION OF SEWER MANHOLES (NON-PARTICIPATING)
STA. 5+85, LT
STA. 3+67, RT
ADJUST ELEVATION OF VALVE BOX (NON-PARTICIPATING)
STA. 5+52, RT
STA. 5+58, RT
STA. 5+84, RT
STA. 5+90, LT
STA. 5+91, RT
STA. 6+83, RT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 5+99, LT

DETECTABLE WARNING SURFACE
STA. 5+99, LT

STEEL BEAM GUARDRAIL, GALVANIZED
STA. ~~3+50.0 TO 4+67.5~~, RT 3+50.0 TO 4+44
STA. ~~3+50.0 TO 5+41.5~~, LT 3+54 TO 5+41.5

ANCHOR FOR STEEL BEAM RAIL
STA. 4+67.5, RT
STA. 5+41.5, LT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 3+50.0 TO 4+47.0, RT
STA. 3+71.0 TO 5+52.0, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 3+50 TO 9+50, SOLID LT & RT
STA. 5+52, SOLID LT (EDGELINES, BIXBY HILL ROAD TH-714)
STA. 5+55, SOLID RT (EDGELINES, ALDER LANE TH-718)

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 3+50 TO 9+50, SOLID LT & RT
STA. 5+52, DOUBLE SOLID LT (BIXBY HILL ROAD TH-714)
STA. 5+55, DOUBLE SOLID RT (ALDER LANE TH-718)

DURABLE 8 INCH WHITE LINE
STA. 6+85, RT (HYDRANT)
SEE DETAIL SHEET 18

DURABLE 24 INCH STOP BAR
STA. 5+52, LT (BIXBY HILL ROAD TH-714)
STA. 5+55, RT (ALDER LANE TH-718)

DURABLE LETTER OR SYMBOL
STA. 3+51, RT "SCHOOL"
STA. 5+52, LT (BIXBY HILL ROAD TH-714) "STOP"
STA. 5+55, RT (ALDER LANE TH-718) "STOP"

DURABLE CROSSWALK MARKING
STA. 5+31, RT TO STA. 5+34, LT
STA. 5+52, LT (BIXBY HILL ROAD TH-714)

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 3+50 TO 9+50, SOLID LT & RT
STA. 5+52, SOLID LT (EDGELINES, BIXBY HILL ROAD TH-714)
STA. 5+55, SOLID RT (EDGELINES, ALDER LANE TH-718)

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 3+50 TO 9+50, SOLID LT & RT
STA. 5+52, DOUBLE SOLID LT (BIXBY HILL ROAD TH-714)
STA. 5+55, DOUBLE SOLID RT (ALDER LANE TH-718)

TEMPORARY 8 INCH WHITE LINE, PAINT
STA. 6+85, RT (HYDRANT)
SEE DETAIL SHEET 18

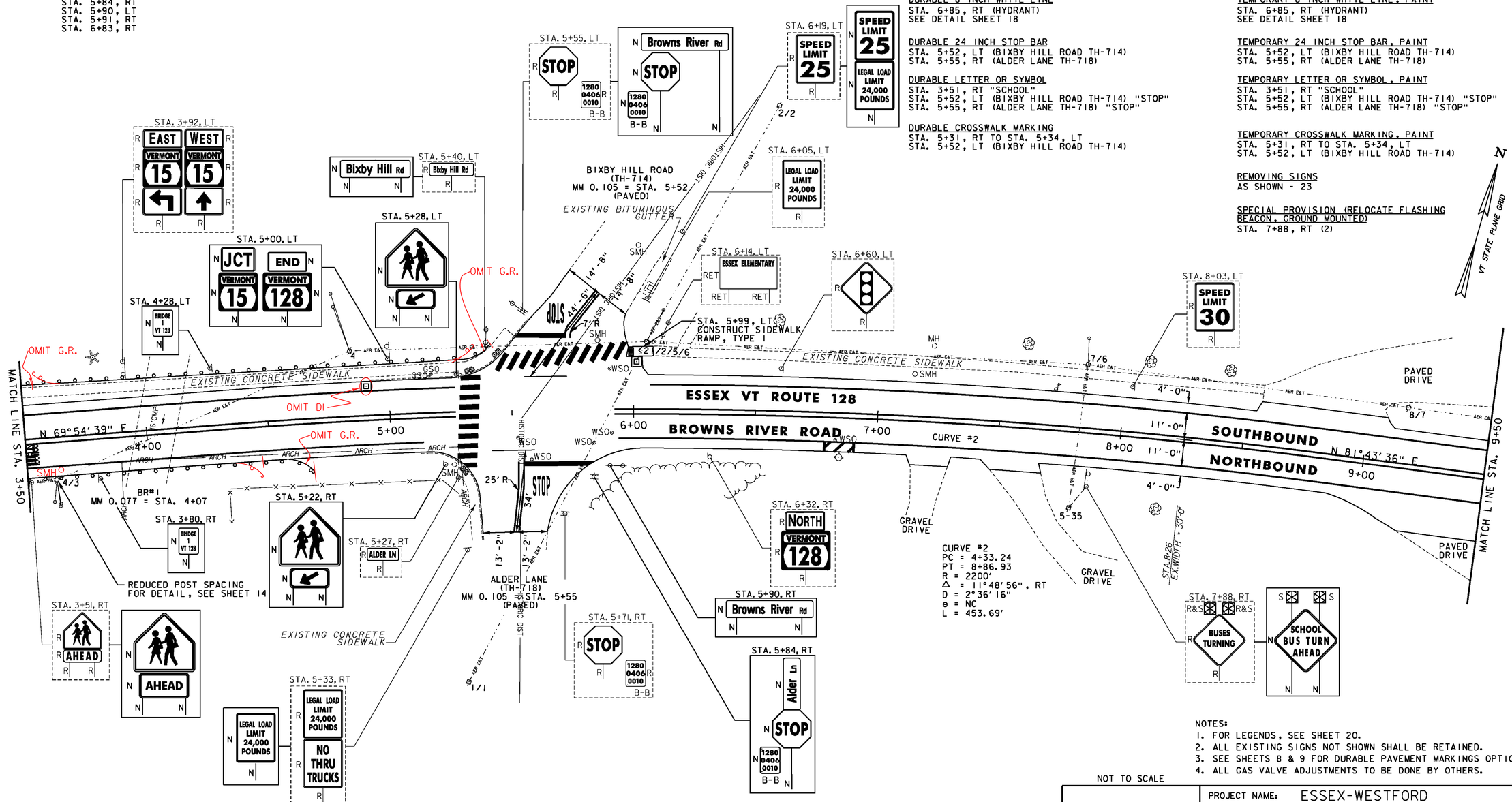
TEMPORARY 24 INCH STOP BAR, PAINT
STA. 5+52, LT (BIXBY HILL ROAD TH-714)
STA. 5+55, RT (ALDER LANE TH-718)

TEMPORARY LETTER OR SYMBOL, PAINT
STA. 3+51, RT "SCHOOL"
STA. 5+52, LT (BIXBY HILL ROAD TH-714) "STOP"
STA. 5+55, RT (ALDER LANE TH-718) "STOP"

TEMPORARY CROSSWALK MARKING, PAINT
STA. 5+31, RT TO STA. 5+34, LT
STA. 5+52, LT (BIXBY HILL ROAD TH-714)

REMOVING SIGNS
AS SHOWN - 23

SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)
STA. 7+88, RT (2)



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.
4. ALL GAS VALVE ADJUSTMENTS TO BE DONE BY OTHERS.

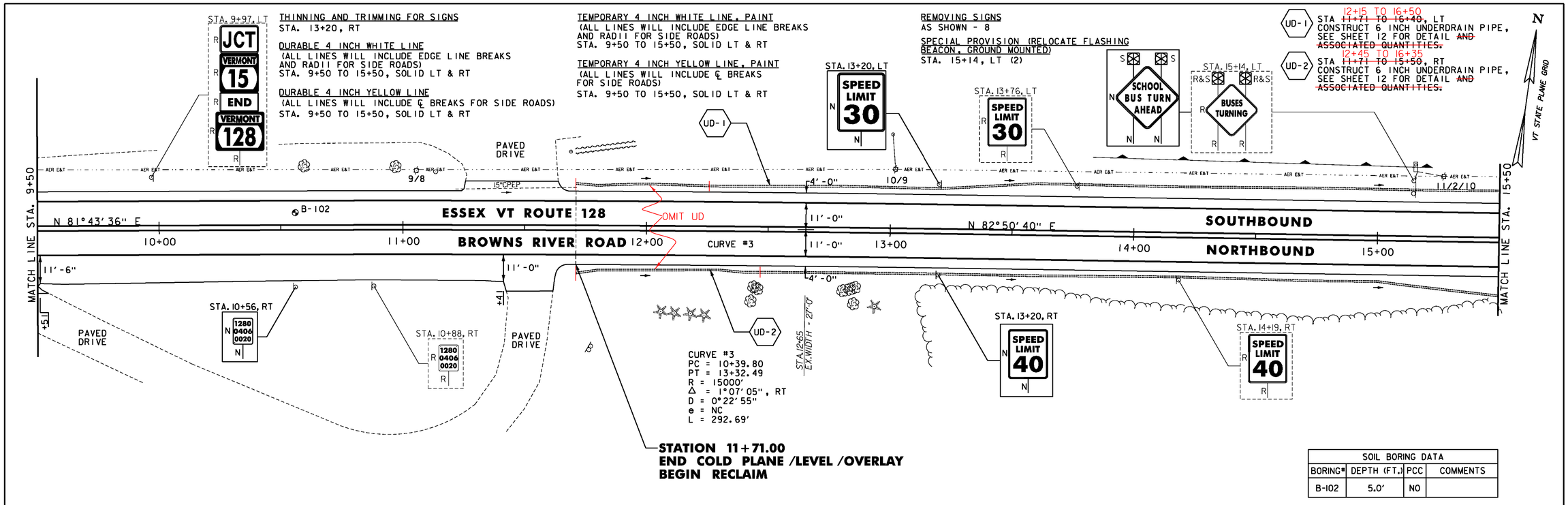
NOT TO SCALE

Stantec

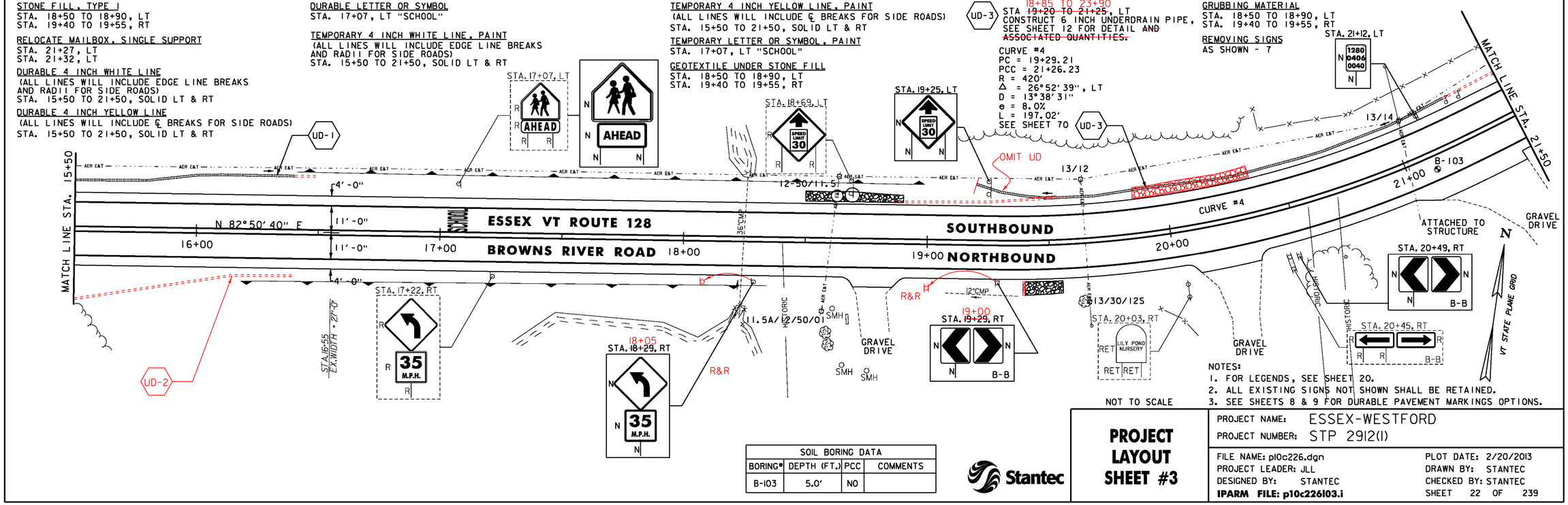
PROJECT LAYOUT SHEET #2

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l02.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 21 OF 239



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-102	5.0'	NO	



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-103	5.0'	NO	

NOT TO SCALE

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

Stantec

PROJECT LAYOUT SHEET #3

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l03.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 22 OF 239

STONE FILL, TYPE I
STA. 22+49 TO 24+90, RT
STA. 22+80 TO 23+00, LT
STA. 23+10 TO 23+81, LT
STA. 24+20 TO 26+80, LT
STA. 25+00 TO 25+60, RT
STA. 26+00 TO 26+70, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 21+50 TO 27+00, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 21+50 TO 27+00, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 21+50 TO 27+00, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 21+50 TO 27+00, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 22+49 TO 24+90, RT
STA. 22+80 TO 23+00, LT
STA. 23+10 TO 23+81, LT
STA. 24+20 TO 26+80, LT
STA. 25+00 TO 25+60, RT
STA. 26+00 TO 26+70, RT

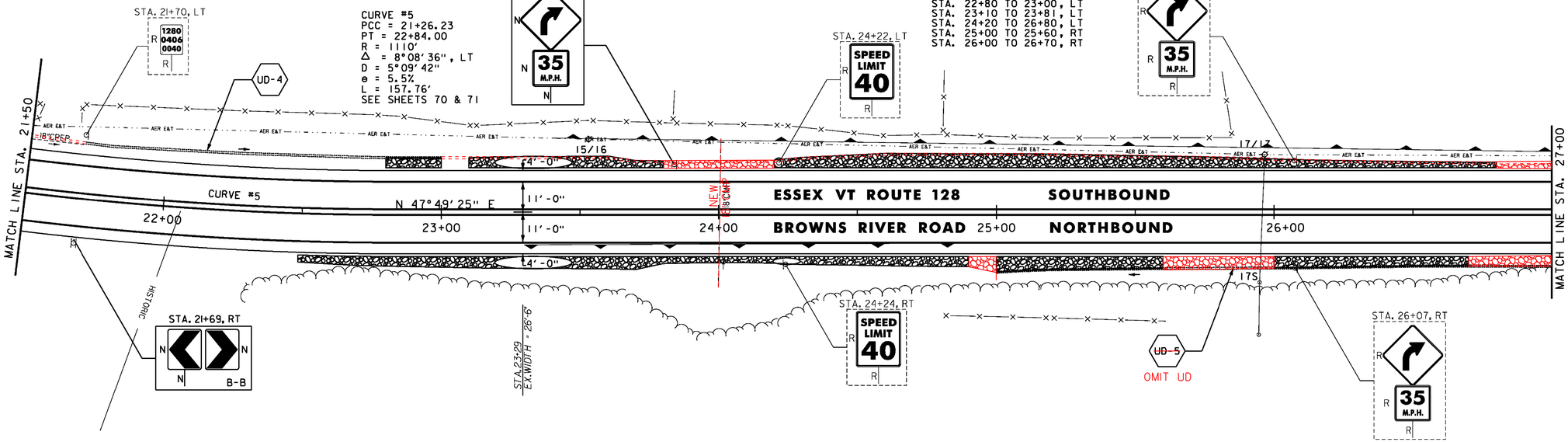
GRUBBING MATERIAL
STA. 22+49 TO 24+90, RT
STA. 22+80 TO 23+00, LT
STA. 23+10 TO 23+81, LT
STA. 24+20 TO 26+80, LT
STA. 25+00 TO 25+60, RT
STA. 26+00 TO 26+70, RT

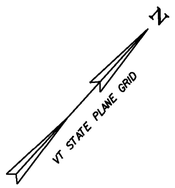
REMOVING SIGNS
AS SHOWN - 7

UD-4
24+10 TO 27+35
STA ~~21+70 TO 23+00~~, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~

~~UD-5~~
~~STA 25+00 TO 28+35, RT~~
~~CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL AND ASSOCIATED QUANTITIES.~~

CURVE #5
PCC = 21+26.23
PT = 22+84.00
R = 1110'
Δ = 8°08'36", LT
D = 5°09'42"
e = 5.5%
L = 157.76'
SEE SHEETS 70 & 71





STONE FILL, TYPE I
STA. 30+00 TO 31+30, LT
STA. 31+20 TO 31+60, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 27+67, LT
STA. 27+86, LT
STA. 27+86, LT
STA. 32+67, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 27+00 TO 33+00, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 27+00 TO 33+00, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 27+00 TO 33+00, SOLID LT & RT

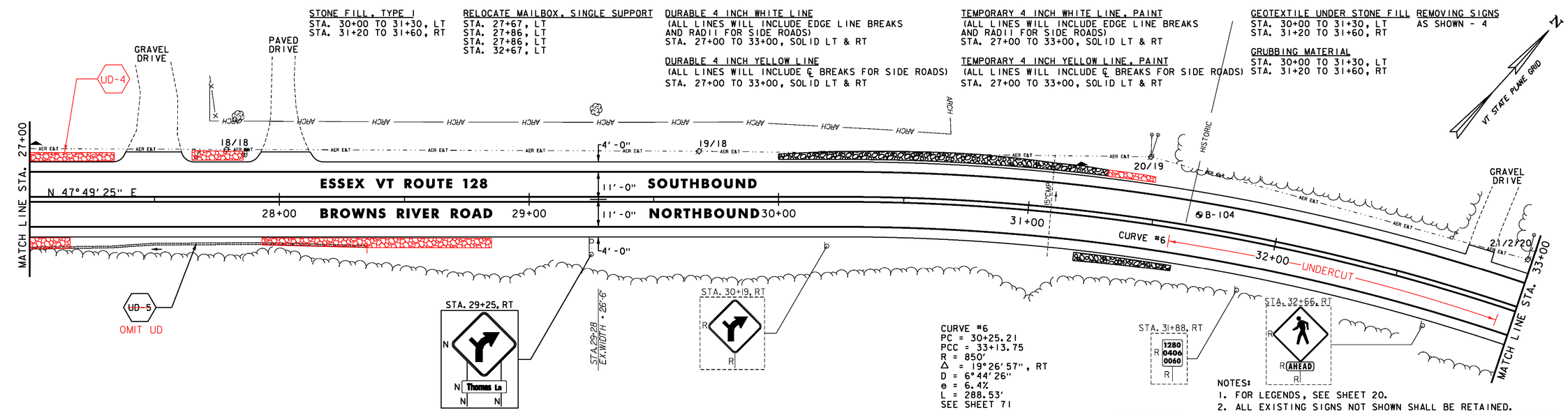
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 27+00 TO 33+00, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 30+00 TO 31+30, LT
STA. 31+20 TO 31+60, RT

GRUBBING MATERIAL
STA. 30+00 TO 31+30, LT
STA. 31+20 TO 31+60, RT

REMOVING SIGNS
AS SHOWN - 4

CURVE #6
PC = 30+25.21
PCC = 33+13.75
R = 850'
Δ = 19°26'57", RT
D = 6°44'26"
e = 6.4%
L = 288.53'
SEE SHEET 71



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA

BORING#	DEPTH (FT.)	PCC	COMMENTS
B-104	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #4

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l04.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 23 OF 239

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 35+76, RT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 37+36, RT
STA. 37+44, LT

DETECTABLE WARNING SURFACE
STA. 37+36, RT
STA. 37+44, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 33+00 TO 38+50, SOLID LT & RT
STA. 37+63, SOLID RT (EDGELINES, IRENE AVENUE TH-798)

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 33+00 TO 38+50, SOLID LT & RT
STA. 33+47, DOUBLE SOLID LT (THOMAS LANE TH-773)
STA. 37+63, DOUBLE SOLID RT (IRENE AVENUE TH-798)

DURABLE 8 INCH WHITE LINE
STA. 34+15, LT (HYDRANT)
SEE DETAIL SHEET 18

DURABLE 24 INCH STOP BAR
STA. 33+47, LT (THOMAS LANE TH-773)
STA. 37+63, RT (IRENE AVENUE TH-798)

DURABLE LETTER OR SYMBOL
STA. 33+47, LT (THOMAS LANE TH-773) "STOP"
STA. 37+63, RT (IRENE AVENUE TH-798) "STOP"

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 33+00 TO 38+50, SOLID LT & RT
STA. 37+63, SOLID RT (EDGELINES, IRENE AVENUE TH-798)

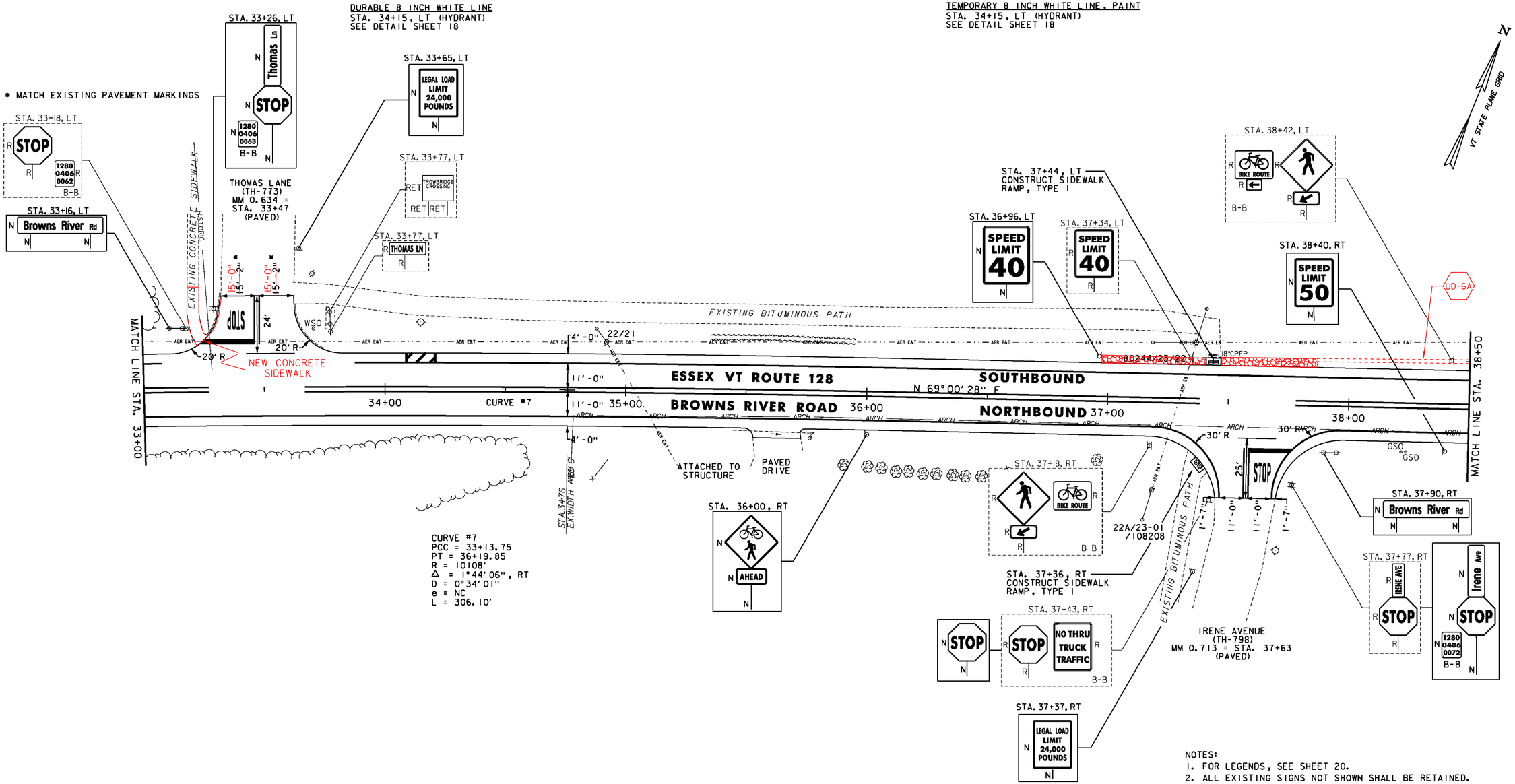
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 33+00 TO 38+50, SOLID LT & RT
STA. 33+47, DOUBLE SOLID LT (THOMAS LANE TH-773)
STA. 37+63, DOUBLE SOLID RT (IRENE AVENUE TH-798)

TEMPORARY 8 INCH WHITE LINE, PAINT
STA. 34+15, LT (HYDRANT)
SEE DETAIL SHEET 18

TEMPORARY 24 INCH STOP BAR, PAINT
STA. 33+47, LT (THOMAS LANE TH-773)
STA. 37+63, RT (IRENE AVENUE TH-798)

TEMPORARY LETTER OR SYMBOL, PAINT
STA. 33+47, LT (THOMAS LANE TH-773) "STOP"
STA. 37+63, RT (IRENE AVENUE TH-798) "STOP"

REMOVING SIGNS
AS SHOWN - 15



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #5

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226105.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 24 OF 239

REMOVAL OF EXISTING BRIDGE RAILING
STA. 42+42.5 TO 42+67.5, LT & RT

STONE FILL, TYPE I
STA. 38+70 TO 40+30, LT
STA. 40+20 TO 41+60, RT
STA. 40+60 TO 41+40, LT
STA. 41+49 TO 41+60, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 40+59, LT

STEEL BEAM GUARDRAIL, GALVANIZED
STA. 40+42.5 TO 42+42.5, RT
STA. 41+42.5 TO 42+42.5, LT
STA. 42+67.5 TO 43+67.5, RT
STA. 42+67.5 TO 44+50.0, LT

HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED
STA. 42+42.5 TO 42+67.5, LT
STA. 42+42.5 TO 42+67.5, RT

ANCHOR FOR STEEL BEAM RAIL
STA. 40+42.5, RT
STA. 41+42.5, LT
STA. 43+67.5, RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 41+85.0 TO 42+48.75, RT
STA. 41+86.0 TO 42+48.75, LT
STA. 42+61.25 TO 43+24.0, RT
STA. 42+61.25 TO 43+74.0, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 38+50 TO 44+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 38+50 TO 44+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 38+50 TO 44+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 38+50 TO 44+50, SOLID LT & RT

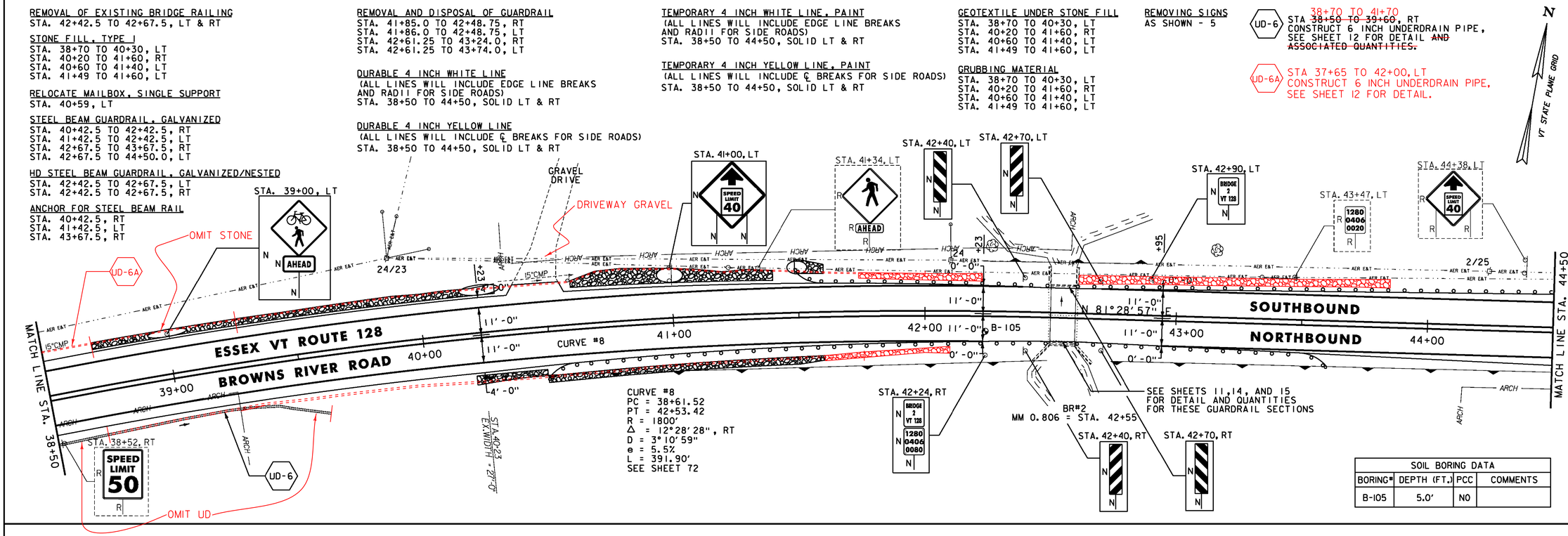
GEOTEXTILE UNDER STONE FILL
STA. 38+70 TO 40+30, LT
STA. 40+20 TO 41+60, RT
STA. 40+60 TO 41+40, LT
STA. 41+49 TO 41+60, LT

GRUBBING MATERIAL
STA. 38+70 TO 40+30, LT
STA. 40+20 TO 41+60, RT
STA. 40+60 TO 41+40, LT
STA. 41+49 TO 41+60, LT

REMOVING SIGNS
AS SHOWN - 5

UD-6 38+70 TO 41+70
STA ~~38+50 TO 39+60~~, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~

UD-6A STA 37+65 TO 42+00, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-105	5.0'	NO	

STEEL BEAM GUARDRAIL, GALVANIZED
STA. 44+50.0 TO 44+67.5, LT

ANCHOR FOR STEEL BEAM RAIL
STA. 44+67.5, LT

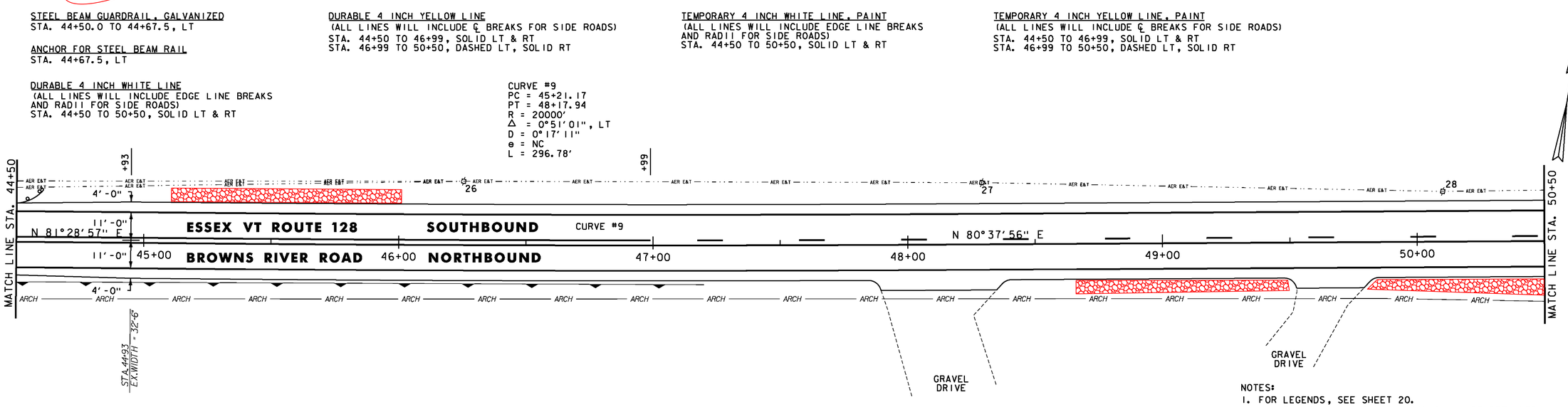
DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 44+50 TO 50+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 44+50 TO 46+99, SOLID LT & RT
STA. 46+99 TO 50+50, DASHED LT, SOLID RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 44+50 TO 50+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 44+50 TO 46+99, SOLID LT & RT
STA. 46+99 TO 50+50, DASHED LT, SOLID RT

CURVE #9
PC = 45+21.17
PT = 48+17.94
R = 20000'
Δ = 0°51'01", LT
D = 0°17'11"
e = NC
L = 296.78'



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #6

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l06.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 25 OF 239

STEEL BEAM GUARDRAIL, GALVANIZED
STA. ~~53+43.5 TO 54+18.5~~, RT 53+43 TO 54+43.5
STA. ~~53+43.5 TO 54+18.5~~, LT 53+43.5 TO 54+43.5
STA. ~~55+56.0 TO 56+31.0~~, RT 55+31 TO 56+31
STA. ~~55+56.0 TO 56+50.0~~, LT 55+31 TO 56+50

HD STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS
STA. ~~54+18.5 TO 54+43.5~~, RT 53+43 TO 54+43.5
STA. ~~54+18.5 TO 54+43.5~~, LT 53+43.5 TO 54+43.5
STA. ~~55+31.0 TO 55+56.0~~, RT 55+31 TO 56+31
STA. ~~55+31.0 TO 55+56.0~~, LT 55+31 TO 56+50

ANCHOR FOR STEEL BEAM RAIL
STA. 53+43.5, LT
STA. 53+43.5, RT
STA. 56+31.0, RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 53+79 TO 54+43.5, RT
STA. 53+82 TO 54+43.5, LT
STA. 55+31 TO 55+94, RT
STA. 55+31 TO 55+93, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 50+50 TO 56+50, SOLID LT & RT

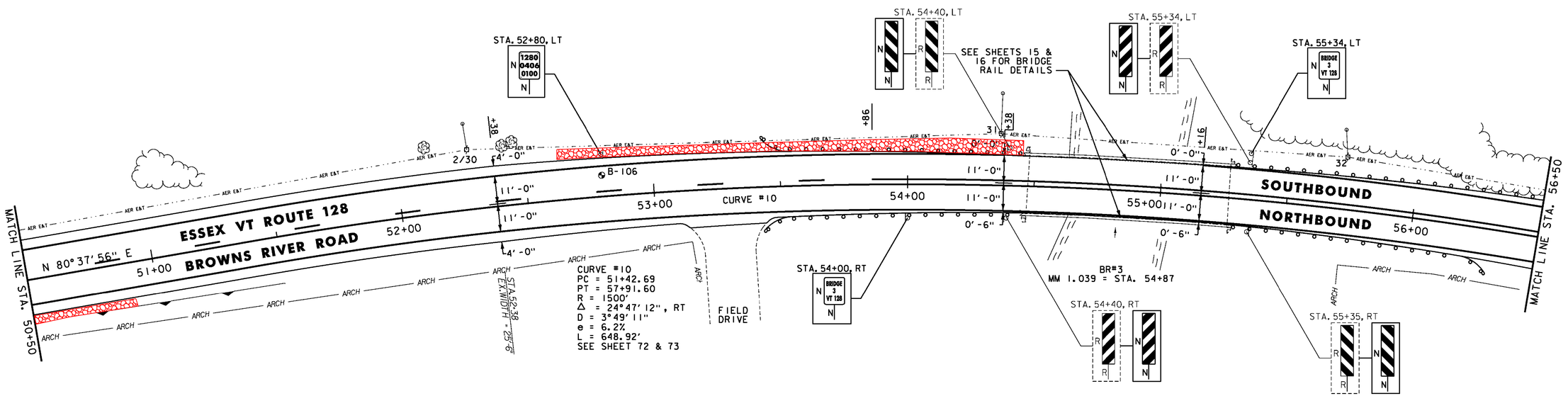
DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 50+50 TO 53+86, DASHED LT, SOLID RT
STA. 53+86 TO 56+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 50+50 TO 56+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 50+50 TO 53+86, DASHED LT, SOLID RT
STA. 53+86 TO 56+50, SOLID LT & RT

REMOVING SIGNS
AS SHOWN - 4

N
VT STATE PLANE GRID



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-106	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #7

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l07.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 26 OF 239

STEEL BEAM GUARDRAIL, GALVANIZED
STA. ~~56+50.0 TO 57+31.0~~, LT
56+50 TO 57+06

ANCHOR FOR STEEL BEAM RAIL
STA. 57+31.0, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 58+26, LT
STA. 58+28, LT
STA. 58+30, LT
STA. 60+45, LT
STA. 60+46, LT
STA. 60+48, LT
STA. 61+80, LT
STA. 61+82, LT

HD STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS
STA. 56+50 TO 57+06, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 56+50 TO 62+50, SOLID LT & RT

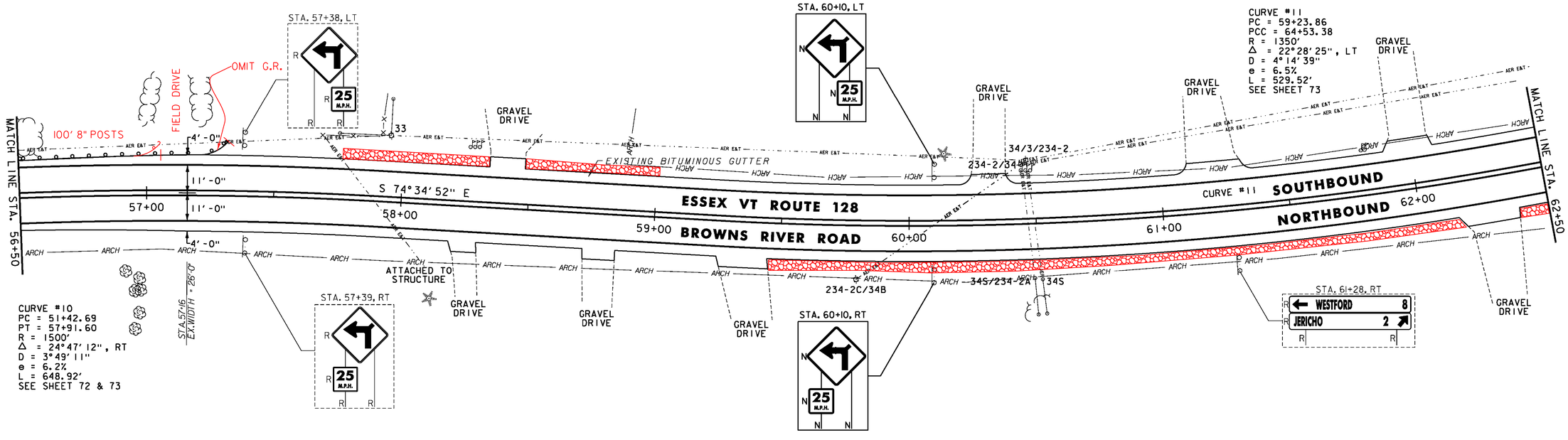
DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 56+50 TO 62+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 56+50 TO 62+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 56+50 TO 62+50, SOLID LT & RT

REMOVING SIGNS
AS SHOWN - 6

N
VT STATE PLANE GRID



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #8

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226108.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 27 OF 239

THINNING AND TRIMMING FOR SIGNS
STA. 65+00, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 64+68, RT

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 67+75, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 62+50 TO 68+50, SOLID LT & RT
STA. 65+43 TO 66+50, DOTTED RT
STA. 66+03, SOLID RT (EDGELINES, WEED ROAD TH-63)

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 62+50 TO 68+50, SOLID LT & RT
STA. 66+03, DOUBLE SOLID RT (WEED ROAD TH-63)

DURABLE 24 INCH STOP BAR
STA. 66+03, RT (WEED ROAD TH-63)

DURABLE LETTER OR SYMBOL
STA. 66+03, RT (WEED ROAD TH-63) "STOP"

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 62+50 TO 68+50, SOLID LT & RT
STA. 65+43 TO 66+50, DOTTED RT
STA. 66+03, SOLID RT (EDGELINES, WEED ROAD TH-63)

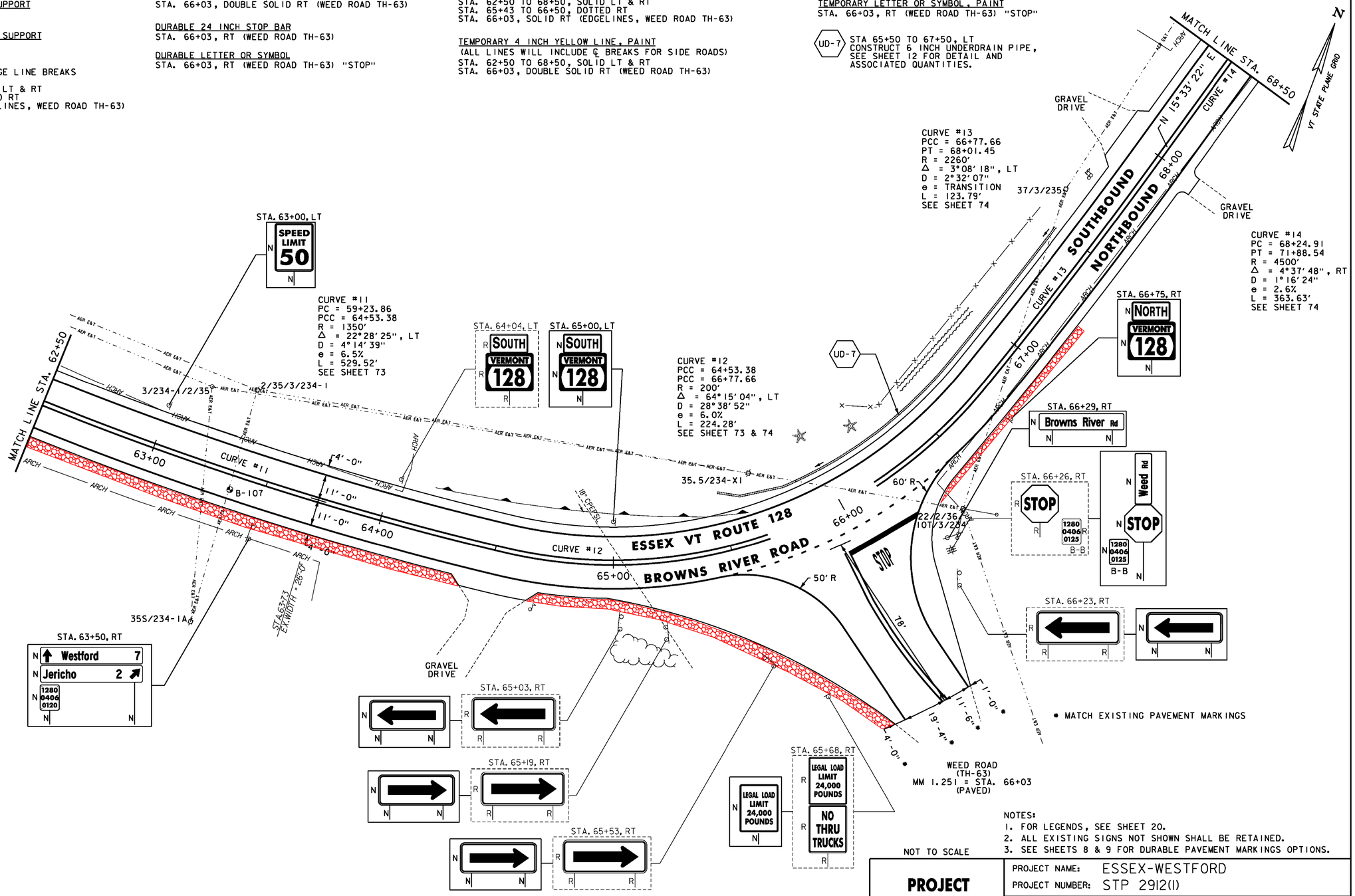
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 62+50 TO 68+50, SOLID LT & RT
STA. 66+03, DOUBLE SOLID RT (WEED ROAD TH-63)

TEMPORARY 24 INCH STOP BAR, PAINT
STA. 66+03, RT (WEED ROAD TH-63)

TEMPORARY LETTER OR SYMBOL, PAINT
STA. 66+03, RT (WEED ROAD TH-63) "STOP"

UD-7 STA 65+50 TO 67+50, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL AND ASSOCIATED QUANTITIES.

REMOVING SIGNS
AS SHOWN - 10



SOIL BORING DATA			
BORING*	DEPTH (FT.)	PCC	COMMENTS
B-107	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #9

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226109.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 28 OF 239

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 71+62, LT
STA. 73+01, RT

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 69+45, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 68+50 TO 74+50, SOLID LT & RT

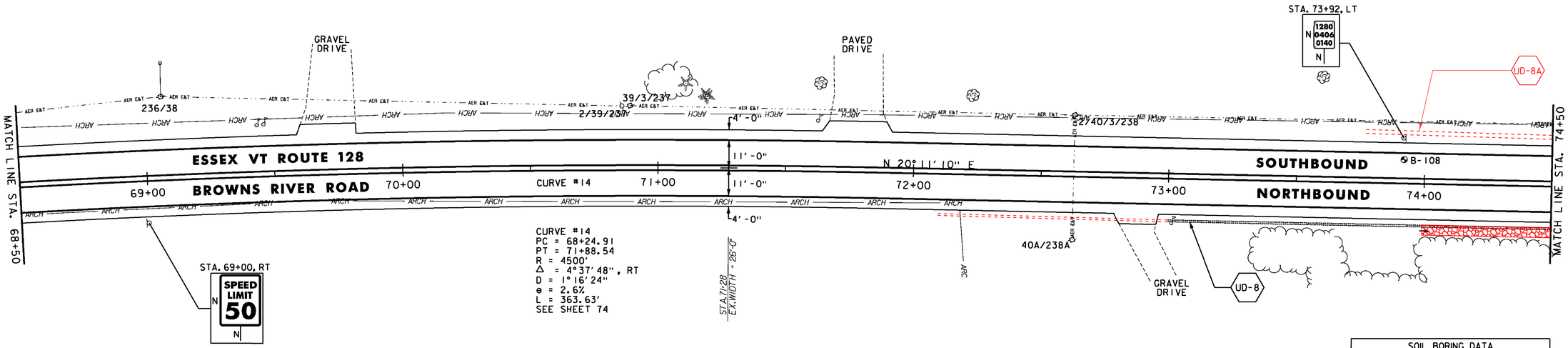
DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 68+50 TO 74+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 68+50 TO 74+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 68+50 TO 74+50, SOLID LT & RT

UD-8 72+10 TO 77+10
STA ~~73+00 TO 76+50~~, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~

VT STATE PLANE GRID



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-108	5.0'	NO	

STA. 74+61, LT

STONE FILL, TYPE I
STA. 76+60 TO 78+50, RT
STA. 77+50 TO 78+10, LT
STA. 79+80 TO 80+40, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 75+19, LT
STA. 79+08, RT
STA. 80+48, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 74+50 TO 80+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 74+50 TO 79+73, SOLID LT & RT
STA. 79+73 TO 80+50, SOLID LT, DASHED RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 74+50 TO 80+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 74+50 TO 79+73, SOLID LT & RT
STA. 79+73 TO 80+50, SOLID LT, DASHED RT

UD-8A STA 73+80 TO 77+20, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

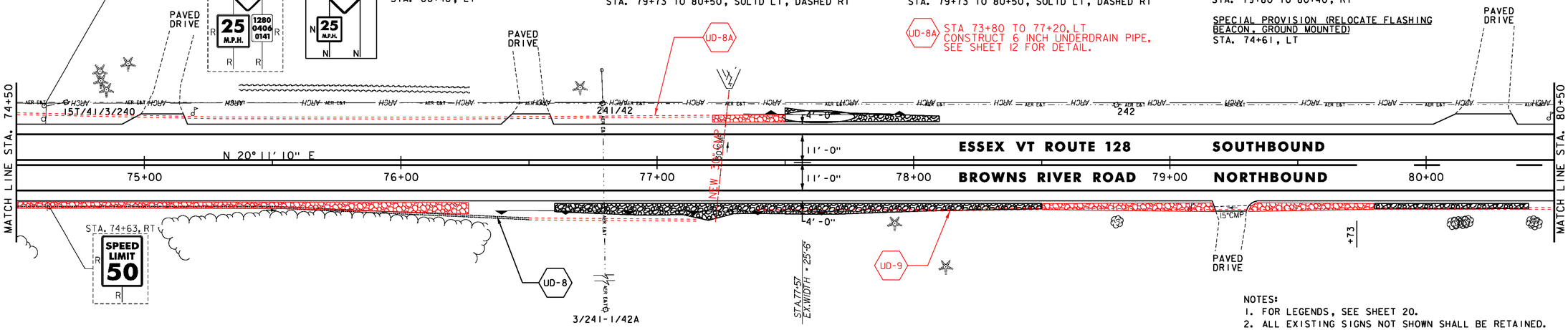
GEOTEXTILE UNDER STONE FILL
STA. 76+60 TO 78+50, RT
STA. 77+50 TO 78+10, LT
STA. 79+80 TO 80+40, RT

GRUBBING MATERIAL
STA. 76+60 TO 78+50, RT
STA. 77+50 TO 78+10, LT
STA. 79+80 TO 80+40, RT

SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)
STA. 74+61, LT

REMOVING SIGNS
AS SHOWN - 4

VT STATE PLANE GRID



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #10

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l10.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 29 OF 239

STONE FILL, TYPE I
STA. 80+50 TO 80+70, RT
STA. 81+10 TO 83+20, RT
STA. 82+10 TO 83+00, LT
STA. 83+40 TO 84+00, RT
STA. 83+40 TO 84+30, LT
STA. 85+30 TO 86+50, RT
STA. 85+80 TO 86+50, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 81+22, LT
STA. 84+87, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 80+50 TO 86+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 80+50 TO 86+50, SOLID LT, DASHED RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 80+50 TO 86+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 80+50 TO 86+50, SOLID LT, DASHED RT

GEOTEXTILE UNDER STONE FILL
STA. 80+50 TO 80+70, RT
STA. 81+10 TO 83+20, RT
STA. 82+10 TO 83+00, LT
STA. 83+40 TO 84+00, RT
STA. 83+40 TO 84+30, LT
STA. 85+30 TO 86+50, RT
STA. 85+80 TO 86+50, LT

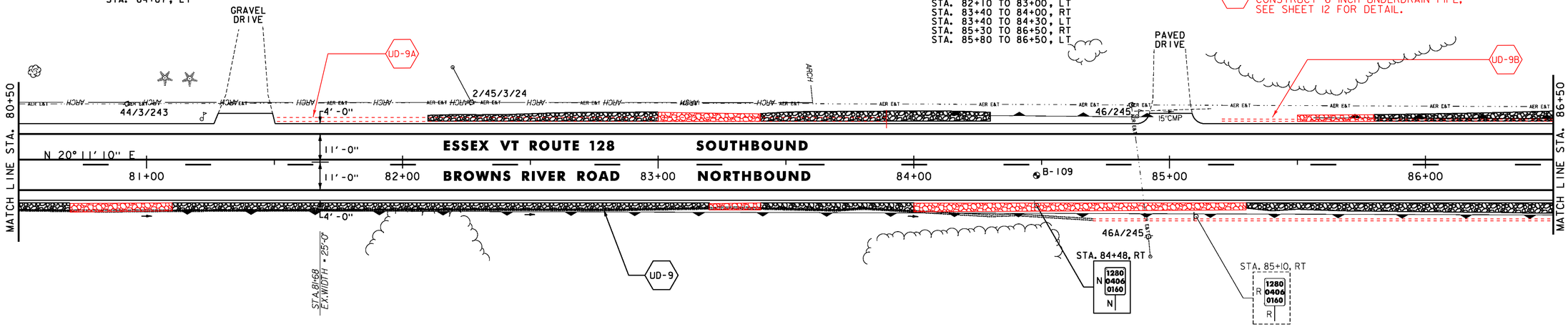
GRUBBING MATERIAL
STA. 80+50 TO 80+70, RT
STA. 81+10 TO 83+20, RT
STA. 82+10 TO 83+00, LT
STA. 83+40 TO 84+00, RT
STA. 83+40 TO 84+30, LT
STA. 85+30 TO 86+50, RT
STA. 85+80 TO 86+50, LT

REMOVING SIGNS
AS SHOWN - 1

UD-9 77+35 TO 86+60
STA ~~80+50 TO 84+70~~, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL ~~AND~~
~~ASSOCIATED QUANTITIES.~~

UD-9A STA 81+55 TO 83+85, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

UD-9B STA 85+20 TO 86+60, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-109	5.0'	NO	

STONE FILL, TYPE I
STA. 86+50 TO 87+10, LT
STA. 86+50 TO 87+63, RT
STA. 88+50 TO 89+90, LT
STA. 90+50 TO 92+00, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 87+31, LT

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 88+25, RT
STA. 92+13, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 86+50 TO 92+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 86+50 TO 87+65, SOLID LT, DASHED RT
STA. 87+65 TO 92+50, DASHED ℄

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 86+50 TO 92+50, SOLID LT & RT

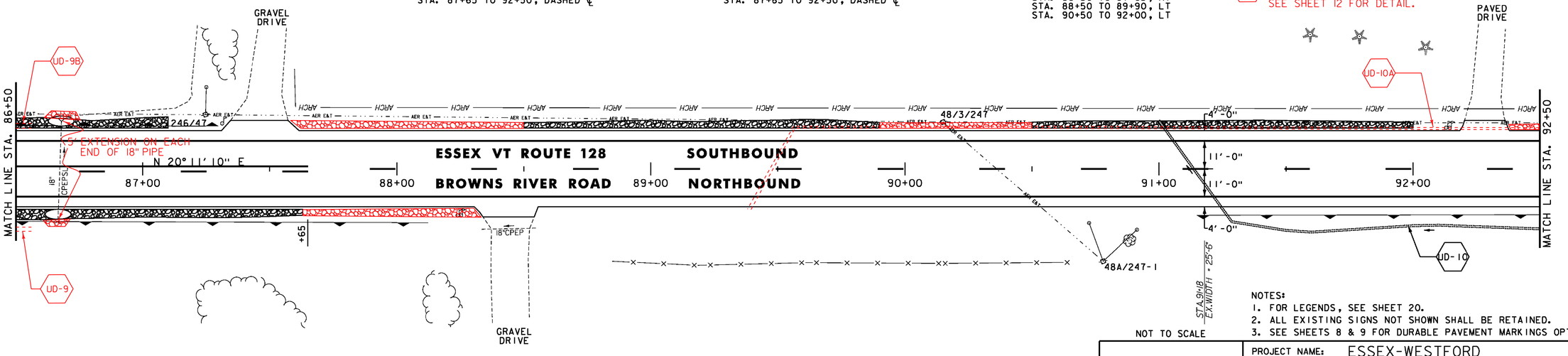
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 86+50 TO 87+65, SOLID LT, DASHED RT
STA. 87+65 TO 92+50, DASHED ℄

GEOTEXTILE UNDER STONE FILL
STA. 86+50 TO 87+10, LT
STA. 86+50 TO 87+63, RT
STA. 88+50 TO 89+90, LT
STA. 90+50 TO 92+00, LT

GRUBBING MATERIAL
STA. 86+50 TO 87+10, LT
STA. 86+50 TO 87+63, RT
STA. 88+50 TO 89+90, LT
STA. 90+50 TO 92+00, LT

UD-10 STA 91+00, LT TO 94+00, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL ~~AND~~
~~ASSOCIATED QUANTITIES.~~

UD-10A STA 89+40, RT TO 94+00, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #11

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l11.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 30 OF 239

STONE FILL, TYPE I
STA. 92+50 TO 94+60, LT
STA. 95+40 TO 95+64, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 94+38, RT
STA. 95+09, RT
STA. 95+35, LT
STA. 95+37, LT
STA. 96+94, RT
STA. 96+95, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 92+50 TO 97+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 92+50 TO 92+93, DASHED ℄
STA. 92+93 TO 97+50, DASHED LT, SOLID RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 92+50 TO 97+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 92+50 TO 92+93, DASHED ℄
STA. 92+93 TO 97+50, DASHED LT, SOLID RT

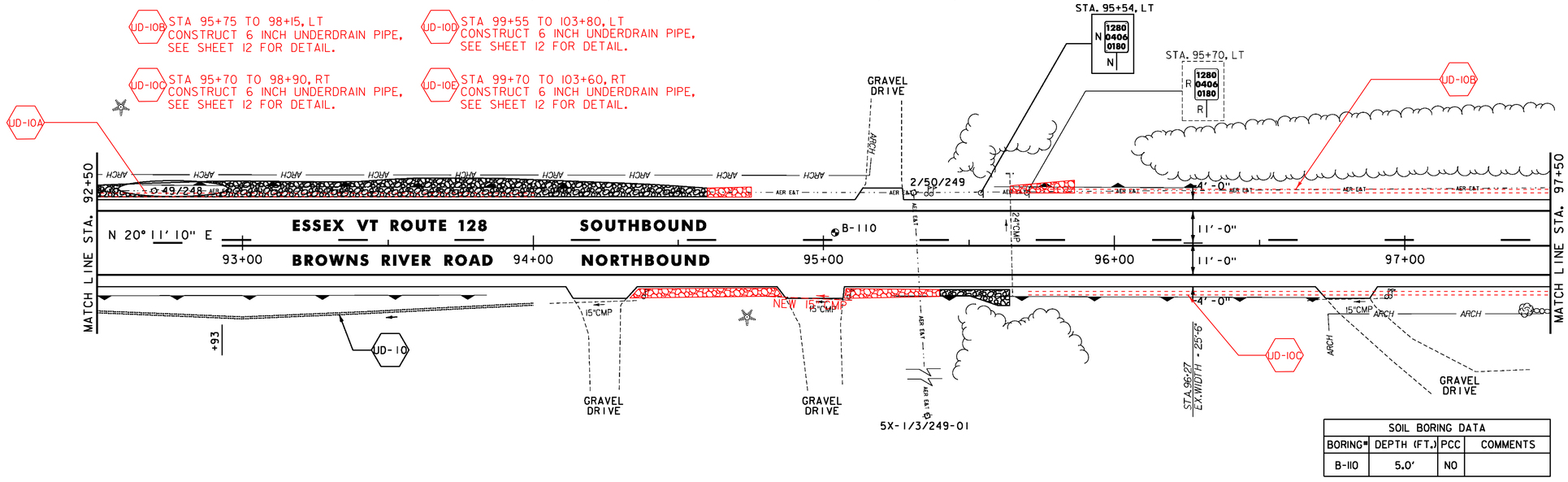
GEOTEXTILE UNDER STONE FILL
STA. 92+50 TO 94+60, LT
STA. 95+40 TO 95+64, RT

GRUBBING MATERIAL
STA. 92+50 TO 94+60, LT
STA. 95+40 TO 95+64, RT

REMOVING SIGNS
AS SHOWN - 1

VT STATE PLANE GRID

UD-10A
UD-10B STA 95+75 TO 98+15, LT CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.
UD-10C STA 95+70 TO 98+90, RT CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.
UD-10D STA 99+55 TO 103+80, LT CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.
UD-10E STA 99+70 TO 103+60, RT CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.



SOIL BORING DATA			
BORING*	DEPTH (FT.)	PCC	COMMENTS
B-110	5.0'	NO	

STONE FILL, TYPE I
STA. 100+50 TO 100+70, LT
STA. 102+00 TO 103+50, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 98+12, LT
STA. 101+08, LT
STA. 101+10, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 97+50 TO 103+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 97+50 TO 99+00, DASHED LT, SOLID RT
STA. 99+00 TO 103+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 97+50 TO 103+50, SOLID LT & RT

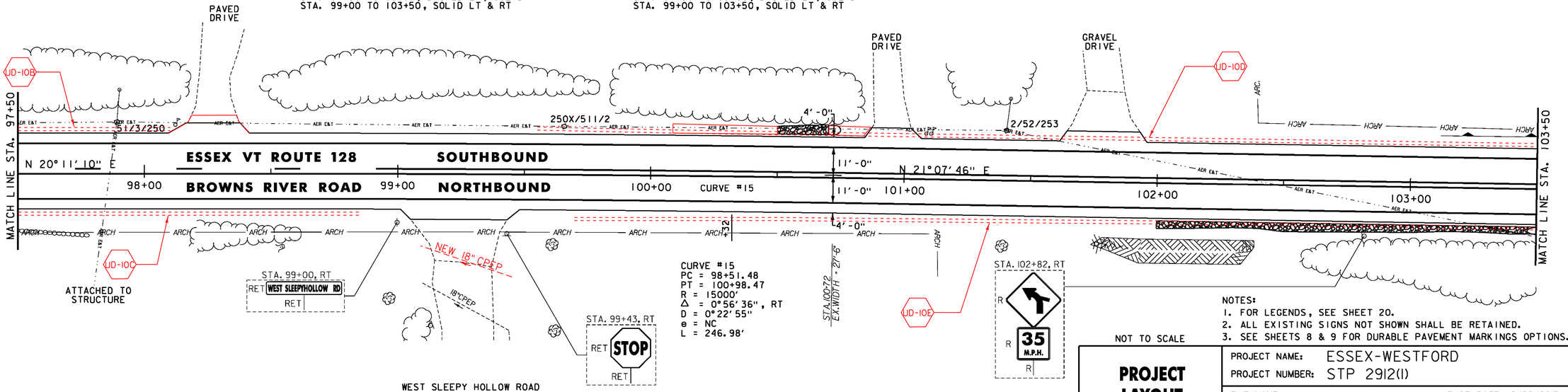
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 97+50 TO 99+00, DASHED LT, SOLID RT
STA. 99+00 TO 103+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 100+50 TO 100+70, LT
STA. 102+00 TO 103+50, RT

GRUBBING MATERIAL
STA. 100+50 TO 100+70, LT
STA. 102+00 TO 103+50, RT

REMOVING SIGNS
AS SHOWN - 2

VT STATE PLANE GRID



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #12

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l12.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 31 OF 239

THINNING AND TRIMMING FOR SIGNS
STA. 103+50, RT

STONE FILL, TYPE I
STA. 103+50 TO 104+60, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 107+07, RT

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 105+80, RT

STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS
STA. 107+21.5 TO 108+50.0, LT
STA. 107+36.0 TO 108+50.0, RT

ANCHOR FOR STEEL BEAM RAIL
STA. 107+21.5, LT
STA. 107+36.0, RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 108+07 TO 108+50, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 103+50 TO 108+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 103+50 TO 108+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 103+50 TO 108+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 103+50 TO 108+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 103+50 TO 104+60, RT

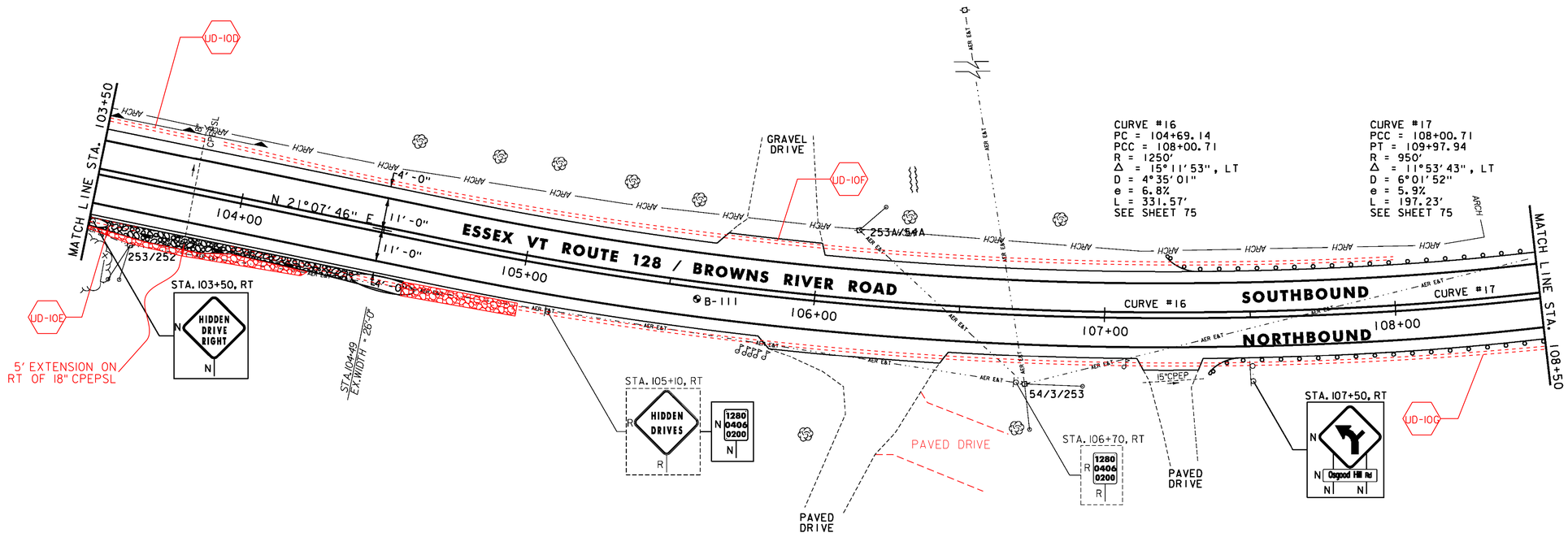
GRUBBING MATERIAL
STA. 103+50 TO 104+60, RT

REMOVING SIGNS
AS SHOWN - 2

N
VT STATE PLANE GRID

UD-10F STA 103+90 TO 108+00, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE.
SEE SHEET 12 FOR DETAIL.

UD-10G STA 104+00 TO 108+70, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE.
SEE SHEET 12 FOR DETAIL.



CURVE #16
PC = 104+69.14
PCC = 108+00.71
R = 1250'
Δ = 15°11'53", LT
D = 4°35'01"
e = 6.8%
L = 331.57'
SEE SHEET 75

CURVE #17
PCC = 108+00.71
PT = 109+97.94
R = 950'
Δ = 11°53'43", LT
D = 6°01'52"
e = 5.9%
L = 197.23'
SEE SHEET 75

SOIL BORING DATA			
BORING*	DEPTH (FT.)	PCC	COMMENTS
B-111	5.0'	NO	

NOT TO SCALE

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

Stantec

PROJECT LAYOUT SHEET #13

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l13.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 32 OF 239

STONE FILL, TYPE I
STA. 110+00 TO 110+30, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 112+69, LT
STA. 112+71, LT

STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS
STA. 108+50.0 TO 111+59.0, LT
STA. 108+50.0 TO 110+90.5, RT

ANCHOR FOR STEEL BEAM RAIL
STA. 110+90.5, RT
STA. 111+59.0, LT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 108+50 TO 110+62, LT
STA. 108+61 TO 111+11, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 108+50 TO 114+00, SOLID LT & RT
STA. 109+86 & 111+13, SOLID RT (EDGELINES, OSGOOD HILL ROAD TH-51)

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 108+50 TO 114+00, SOLID LT & RT
STA. 111+13, DOUBLE SOLID RT (OSGOOD HILL ROAD TH-51)
STA. 109+86, SOLID RT (OSGOOD HILL ROAD APPROACH TH-51)

DURABLE 24 INCH STOP BAR
STA. 111+13, RT (OSGOOD HILL ROAD TH-51)

DURABLE LETTER OR SYMBOL
STA. 110+75, RT WRONG WAY ARROW (OSGOOD HILL ROAD TH-51) (FOR DETAIL SEE SHEET 18)
STA. 110+86, RT YIELD BAR (OSGOOD HILL ROAD TH-51) (4 EA)
STA. 111+13. RT "STOP" (OSGOOD HILL ROAD TH-51)

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 108+50 TO 114+00, SOLID LT & RT
STA. 109+86 & 111+13, SOLID RT (EDGELINES, OSGOOD HILL ROAD TH-51)

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 108+50 TO 114+00, SOLID LT & RT
STA. 111+13, DOUBLE SOLID RT (OSGOOD HILL ROAD TH-51)
STA. 109+86, SOLID RT (OSGOOD HILL ROAD APPROACH TH-51)

TEMPORARY 24 INCH STOP BAR, PAINT
STA. 111+13, RT (OSGOOD HILL ROAD TH-51)

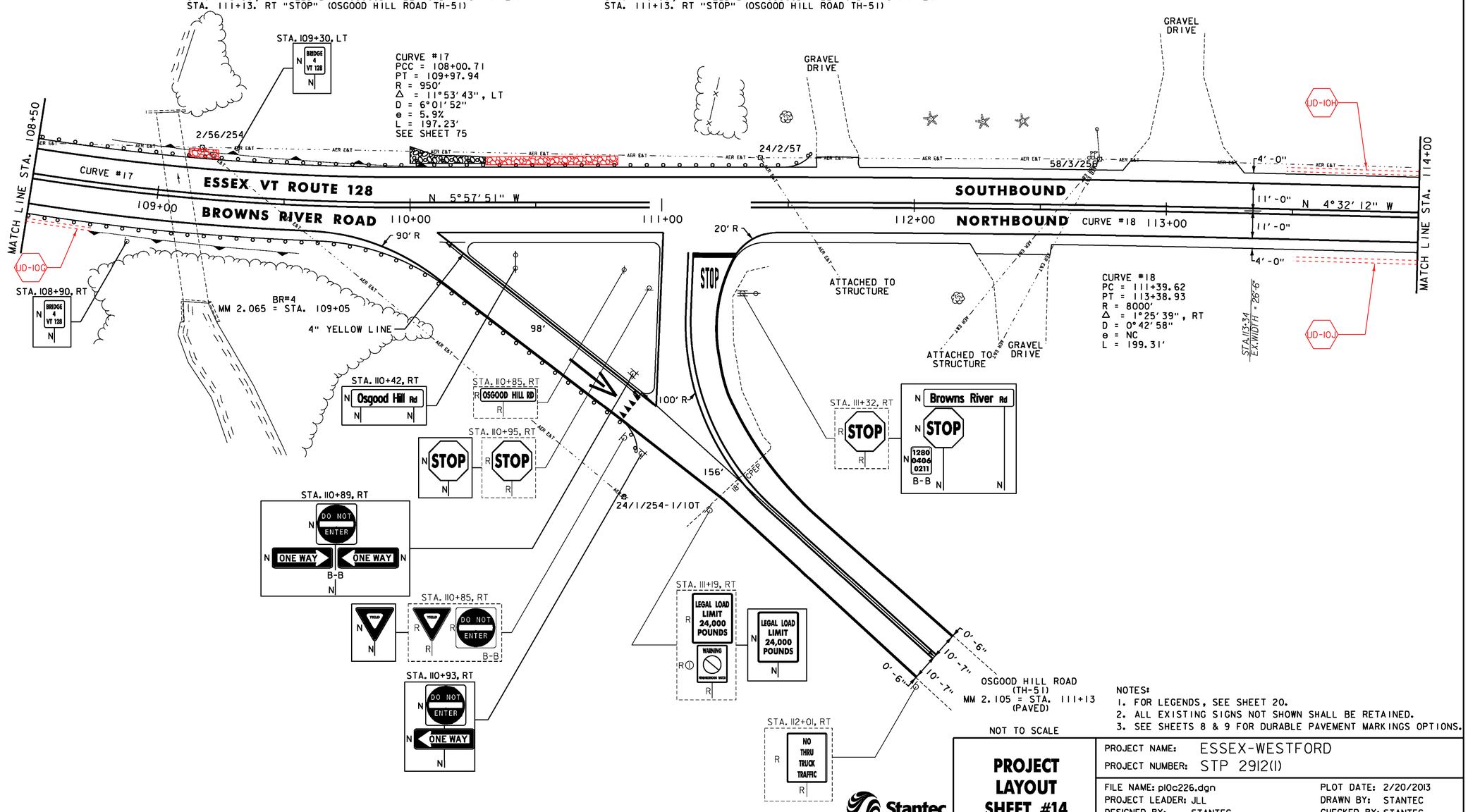
TEMPORARY LETTER OR SYMBOL, PAINT
STA. 110+75, RT WRONG WAY ARROW (OSGOOD HILL ROAD TH-51) (FOR DETAIL SEE SHEET 18)
STA. 110+86, RT YIELD BAR (OSGOOD HILL ROAD TH-51) (4 EA)
STA. 111+13. RT "STOP" (OSGOOD HILL ROAD TH-51)

GEOTEXTILE UNDER STONE FILL
STA. 110+00 TO 110+30, LT

GRUBBING MATERIAL
STA. 110+00 TO 110+30, LT

REMOVING SIGNS
AS SHOWN - 8

VT STATE PLANE GRID N



NOT TO SCALE

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

Stantec

PROJECT LAYOUT SHEET #14

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226114.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 33 OF 239

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 114+00 TO 119+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 114+00 TO 119+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 114+00 TO 119+50, SOLID LT & RT

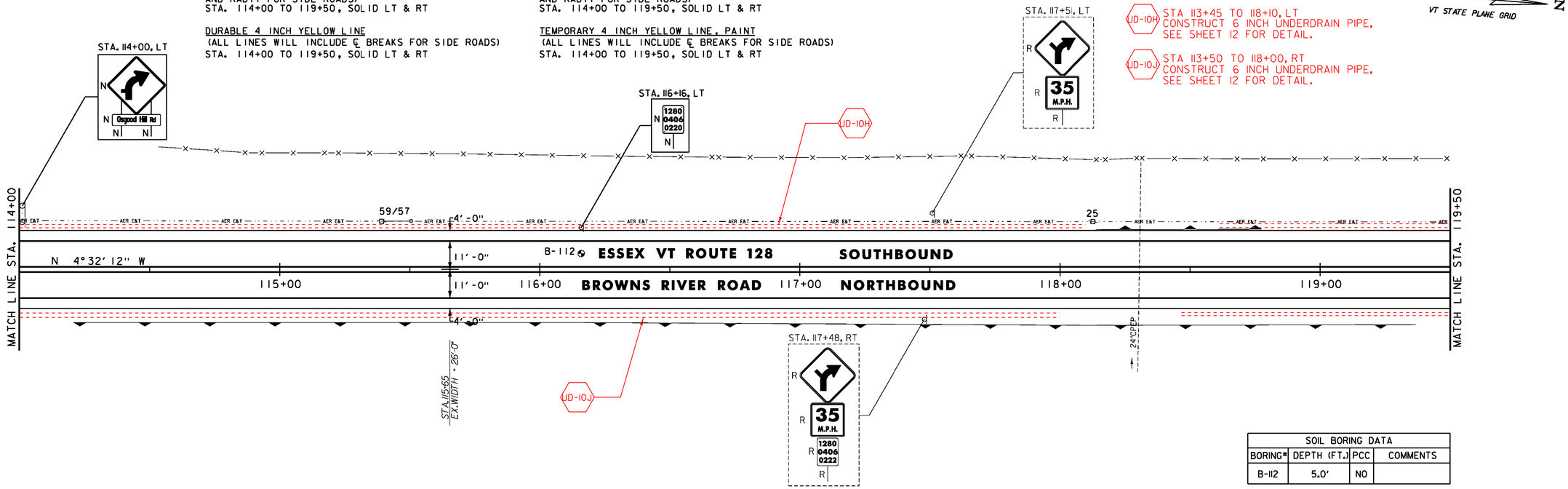
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 114+00 TO 119+50, SOLID LT & RT

REMOVING SIGNS
AS SHOWN - 5

VT STATE PLANE GRID N

UD-10H STA 113+45 TO 118+10, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

UD-10J STA 113+50 TO 118+00, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-112	5.0'	NO	

STONE FILL, TYPE I
STA. 124+40 TO 124+70, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 119+50 TO 125+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 119+50 TO 120+65, SOLID LT & RT
STA. 120+65 TO 125+50, SOLID LT, DASHED RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 119+50 TO 125+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 119+50 TO 120+65, SOLID LT & RT
STA. 120+65 TO 125+50, SOLID LT, DASHED RT

GEOTEXTILE UNDER STONE FILL
STA. 124+40 TO 124+70, LT

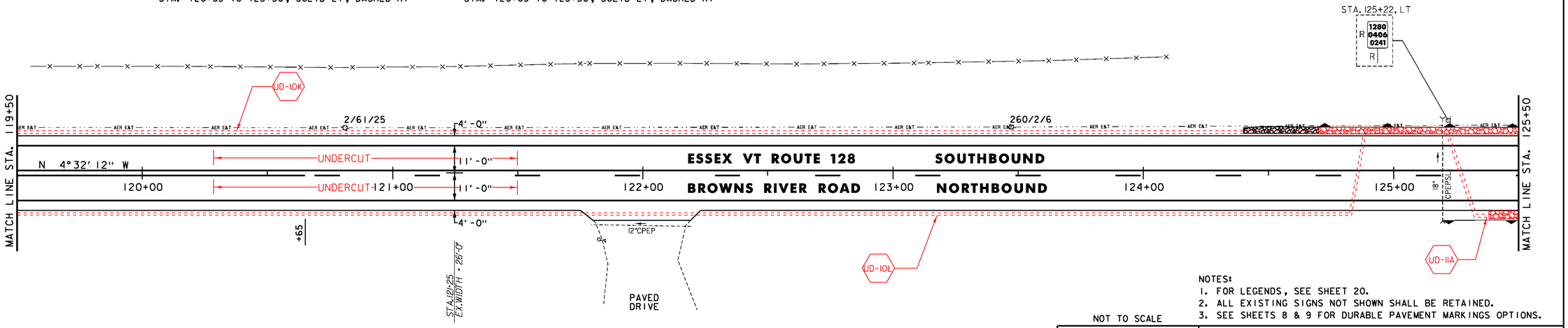
GRUBBING MATERIAL
STA. 124+40 TO 124+70, LT

REMOVING SIGNS
AS SHOWN - 1

UD-10K STA 118+60 TO 125+10, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE.

UD-10L STA 118+45 RT TO 124+90, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE.

VT STATE PLANE GRID N



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #15

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l15.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC

STONE FILL, TYPE I
STA. 125+60 TO 126+30, RT
STA. 127+50 TO 129+20, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 126+53, LT
STA. 130+78, LT
STA. 130+80, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 125+50 TO 131+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 125+50 TO 128+04, SOLID LT, DASHED RT
STA. 128+04 TO 131+50, DASHED LT, SOLID RT

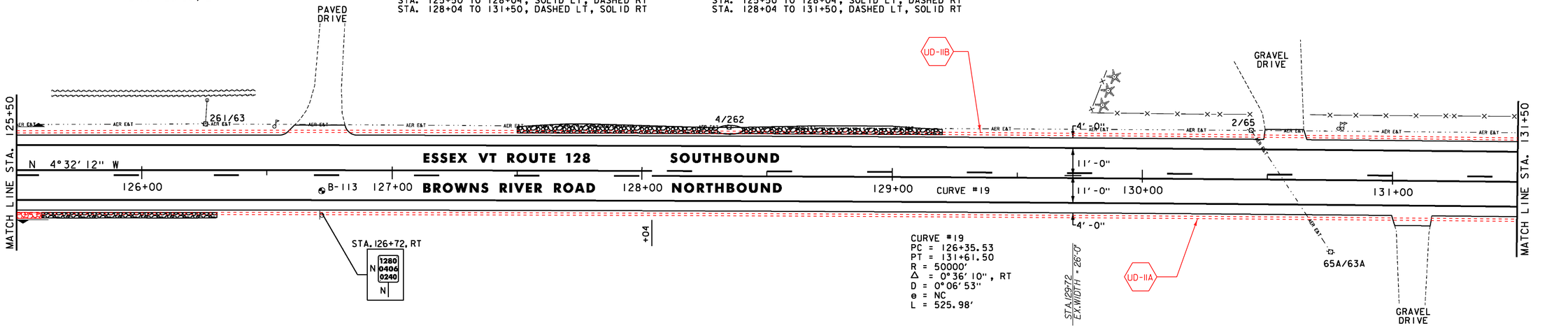
TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 125+50 TO 131+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 125+50 TO 128+04, SOLID LT, DASHED RT
STA. 128+04 TO 131+50, DASHED LT, SOLID RT

GEOTEXTILE UNDER STONE FILL
STA. 125+60 TO 126+30, RT
STA. 127+50 TO 129+20, LT

GRUBBING MATERIAL
STA. 125+60 TO 126+30, RT
STA. 127+50 TO 129+20, LT

VT STATE PLANE GRID N



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-113	5.0'	NO	

STONE FILL, TYPE I
STA. 133+90 TO 134+30, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 132+40, RT
STA. 134+85, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 131+50 TO 137+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 131+50 TO 135+17, DASHED LT, SOLID RT
STA. 135+17 TO 137+50, SOLID LT, DASHED RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 131+50 TO 137+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 131+50 TO 135+17, DASHED LT, SOLID RT
STA. 135+17 TO 137+50, SOLID LT, DASHED RT

GEOTEXTILE UNDER STONE FILL
STA. 133+90 TO 134+30, RT

GRUBBING MATERIAL
STA. 133+90 TO 134+30, RT

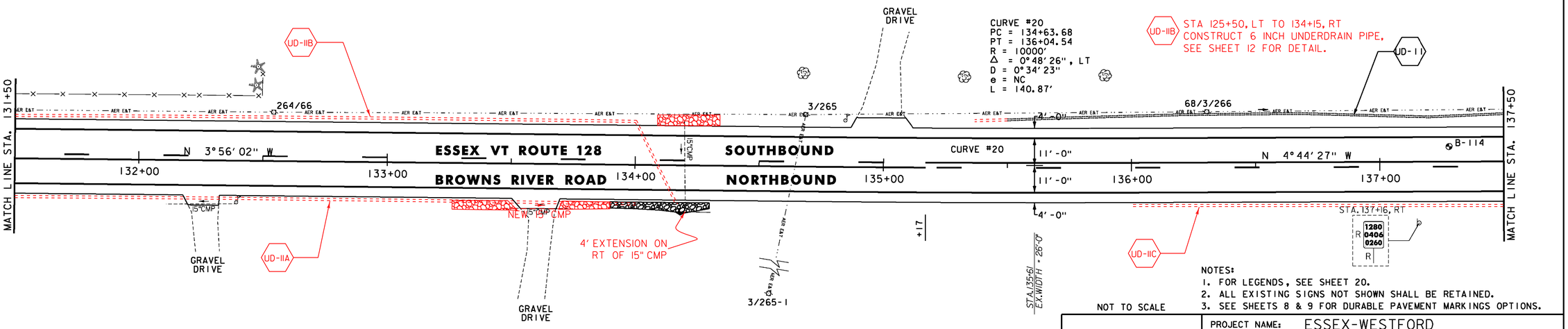
REMOVING SIGNS
AS SHOWN - 1

UD-11 135+35 TO 140+10
STA ~~135+50 TO 140+00~~, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~

UD-11A STA 125+20, LT TO 134+00, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

UD-11B STA 125+50, LT TO 134+15, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

VT STATE PLANE GRID N



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-114	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #16

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l16.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC

STONE FILL, TYPE I
STA. 139+10 TO 140+00, LT
STA. 140+20 TO 141+00, LT
STA. 142+64 TO 143+50, LT
STA. 143+20 TO 143+50, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 141+58, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 137+50 TO 143+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 137+50 TO 142+56, SOLID LT, DASHED RT
STA. 142+56 TO 143+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 137+50 TO 143+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 137+50 TO 142+56, SOLID LT, DASHED RT
STA. 142+56 TO 143+50, SOLID LT & RT

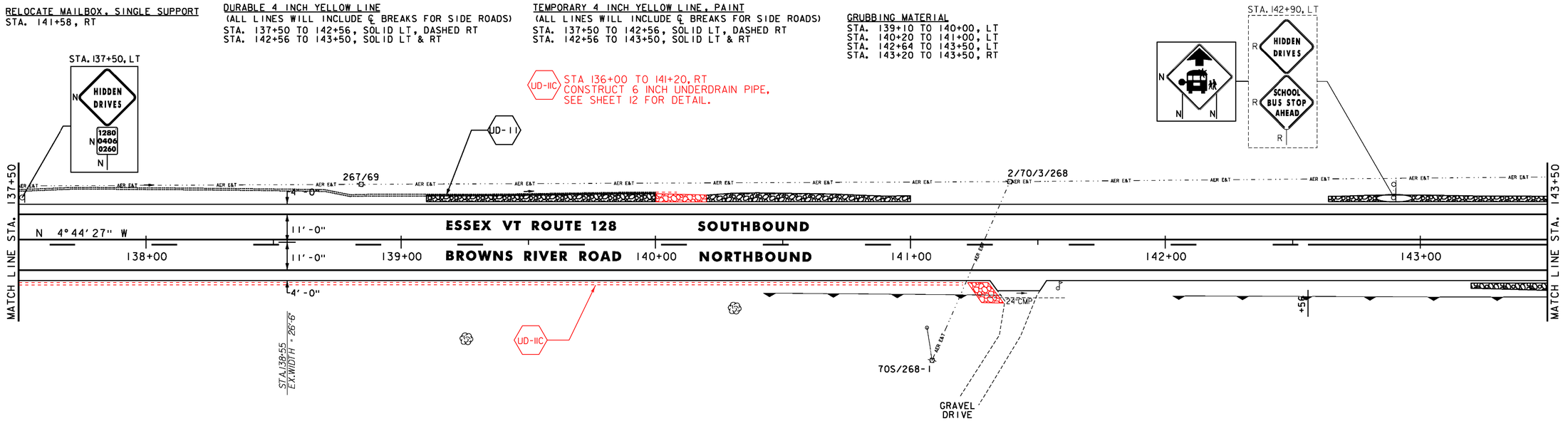
GEOTEXTILE UNDER STONE FILL
STA. 139+10 TO 140+00, LT
STA. 140+20 TO 141+00, LT
STA. 142+64 TO 143+50, LT
STA. 143+20 TO 143+50, RT

GRUBBING MATERIAL
STA. 139+10 TO 140+00, LT
STA. 140+20 TO 141+00, LT
STA. 142+64 TO 143+50, LT
STA. 143+20 TO 143+50, RT

REMOVING SIGNS
AS SHOWN - 2

VT STATE PLANE GRID N

UD-IIC STA 136+00 TO 141+20, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.



STONE FILL, TYPE I
STA. 143+50 TO 143+80, LT
STA. 143+50 TO 144+90, RT

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 147+65, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 143+50 TO 149+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 143+50 TO 149+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 143+50 TO 149+50, SOLID LT & RT

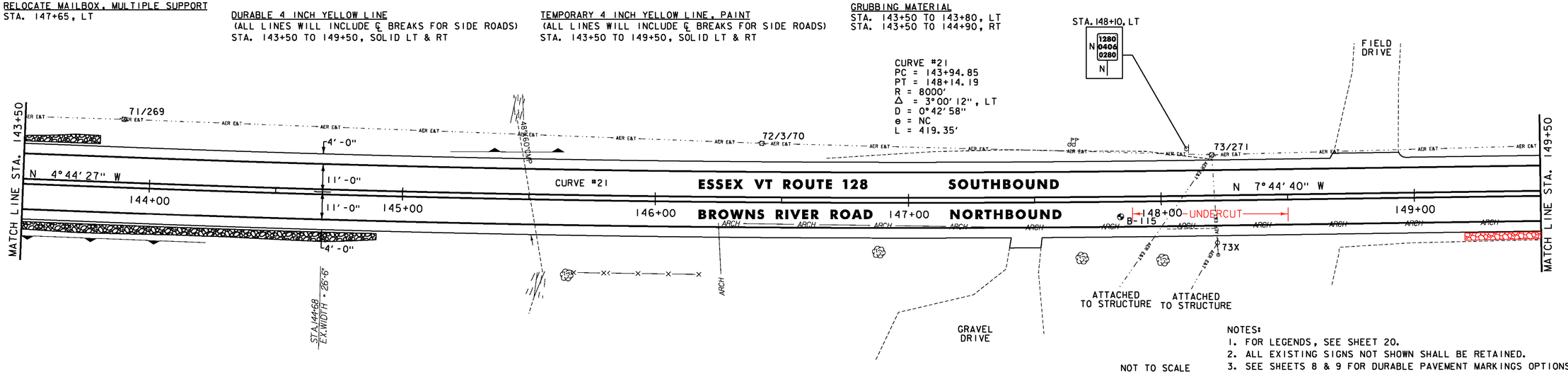
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 143+50 TO 149+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 143+50 TO 143+80, LT
STA. 143+50 TO 144+90, RT

GRUBBING MATERIAL
STA. 143+50 TO 143+80, LT
STA. 143+50 TO 144+90, RT

VT STATE PLANE GRID N

CURVE #21
PC = 143+94.85
PT = 148+14.19
R = 8000'
Δ = 3°00'12", LT
D = 0°42'58"
e = NC
L = 419.35'



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-115	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #17

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226117.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 153+64, RT

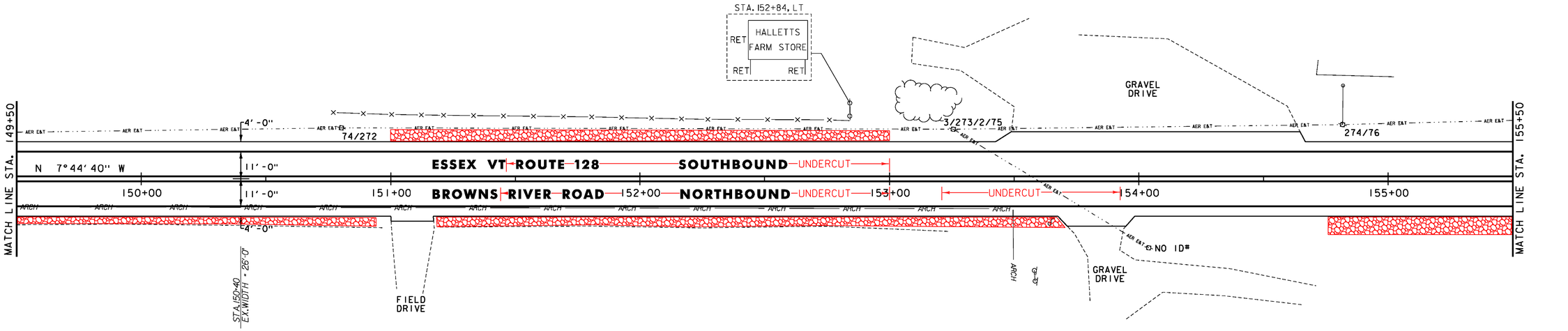
DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 149+50 TO 155+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 149+50 TO 155+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 149+50 TO 155+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 149+50 TO 155+50, SOLID LT & RT

VT STATE PLANE GRID N



STONE FILL, TYPE I
STA. 156+20 TO 157+60, RT
STA. 156+50 TO 156+70, LT
STA. 157+30 TO 160+30, LT
STA. 158+00 TO 159+00, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 157+69, RT
STA. 161+00, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 155+50 TO 161+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 155+50 TO 161+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 155+50 TO 161+50, SOLID LT & RT

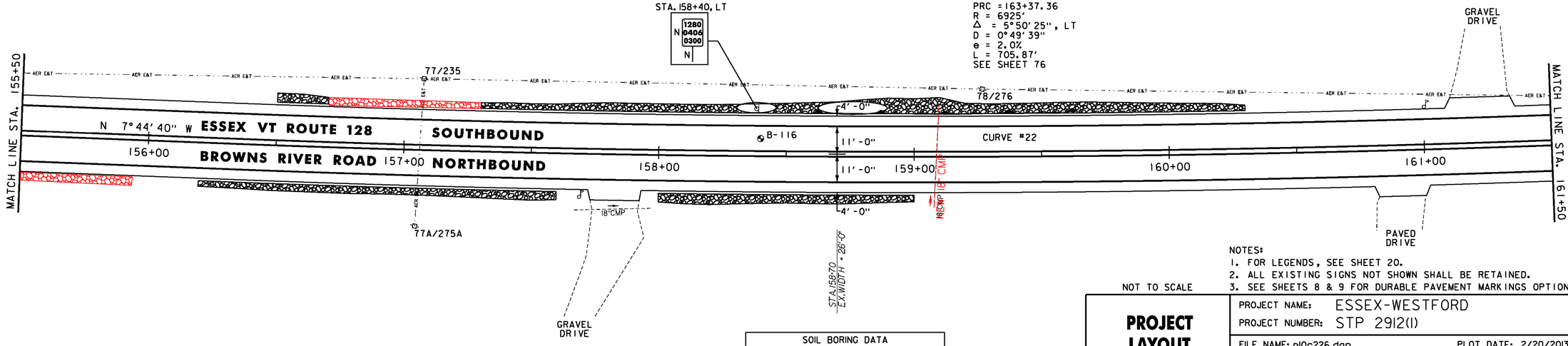
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 155+50 TO 161+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 156+20 TO 157+60, RT
STA. 156+50 TO 156+70, LT
STA. 157+30 TO 160+30, LT
STA. 158+00 TO 159+00, RT

GRUBBING MATERIAL
STA. 156+20 TO 157+60, RT
STA. 156+50 TO 156+70, LT
STA. 157+30 TO 160+30, LT
STA. 158+00 TO 159+00, RT

VT STATE PLANE GRID N

CURVE #22
PC = 156+31.49
PRC = 163+37.36
R = 6925'
Δ = 5°50'25", LT
D = 0°49'39"
e = 2.0%
L = 705.87'
SEE SHEET 76



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-116	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #18

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l18.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 37 OF 239

SOLID ROCK EXCAVATION
STA. 163+00 TO 166+00, RT

STONE FILL, TYPE I
STA. 164+27 TO 165+60, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 161+50 TO 167+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 161+50 TO 167+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 161+50 TO 167+50, SOLID LT & RT

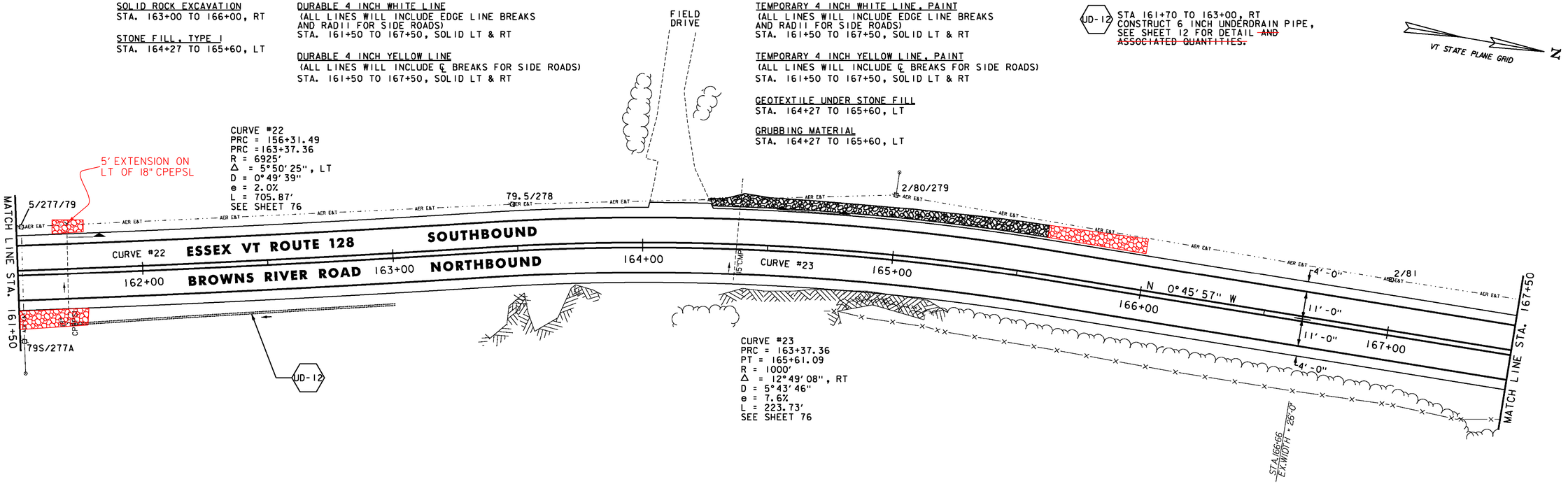
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 161+50 TO 167+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 164+27 TO 165+60, LT

GRUBBING MATERIAL
STA. 164+27 TO 165+60, LT

UD-12 STA 161+70 TO 163+00, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~

VT STATE PLANE GRID N



STONE FILL, TYPE I
STA. 167+79 TO 168+10, RT
STA. 170+50 TO 172+50, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 169+54, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 167+50 TO 173+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 167+50 TO 173+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 167+50 TO 173+50, SOLID LT & RT

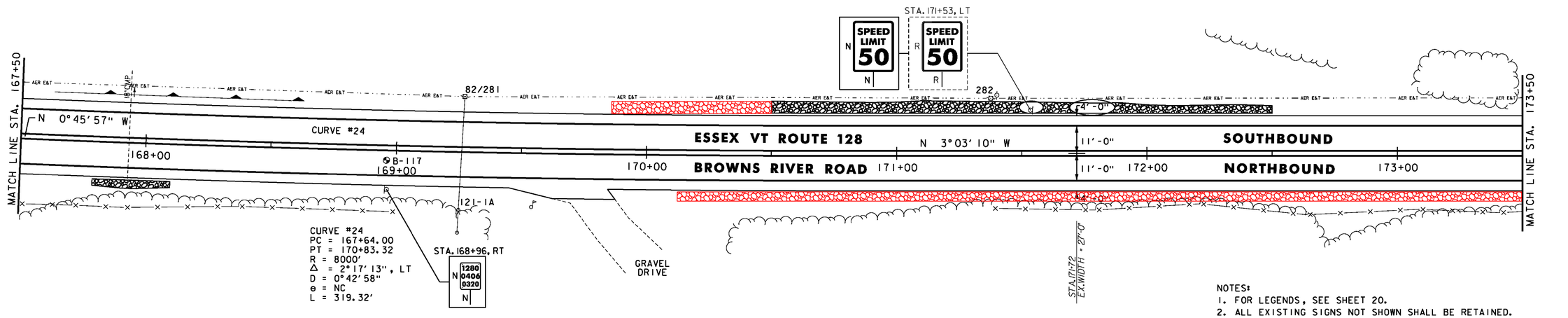
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 167+50 TO 173+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 167+79 TO 168+10, RT
STA. 170+50 TO 172+50, LT

GRUBBING MATERIAL
STA. 167+79 TO 168+10, RT
STA. 170+50 TO 172+50, LT

REMOVING SIGNS
AS SHOWN - 1

VT STATE PLANE GRID N



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-117	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #19

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226119.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 38 OF 239

STONE FILL, TYPE I
STA. 174+70 TO 179+50, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 174+42, LT
STA. 174+44, LT
STA. 176+12, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 173+50 TO 179+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 173+50 TO 179+50, SOLID LT & RT

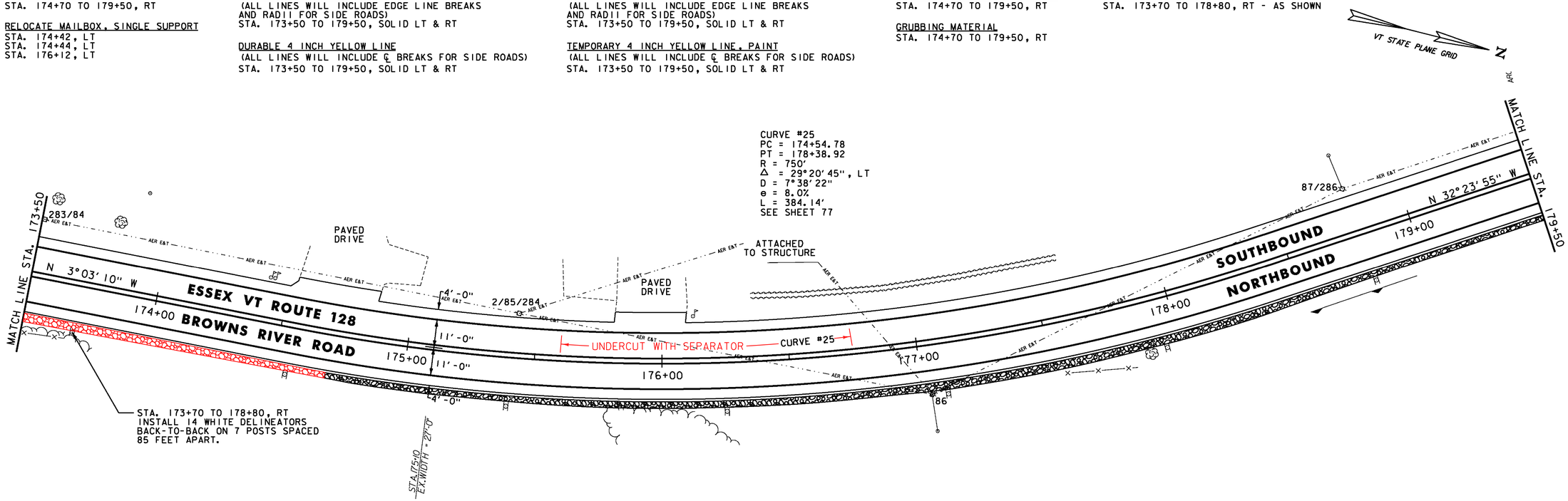
TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 173+50 TO 179+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 173+50 TO 179+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 174+70 TO 179+50, RT

GRUBBING MATERIAL
STA. 174+70 TO 179+50, RT

DELINEATOR WITH STEEL POST
STA. 173+70 TO 178+80, RT - AS SHOWN



STONE FILL, TYPE I
STA. 179+50 TO 179+80, RT
STA. 180+60 TO 181+20, RT
STA. 181+40 TO 183+50, RT
STA. 185+00 TO 185+50, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 180+56, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 179+50 TO 185+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 179+50 TO 185+50, SOLID LT & RT

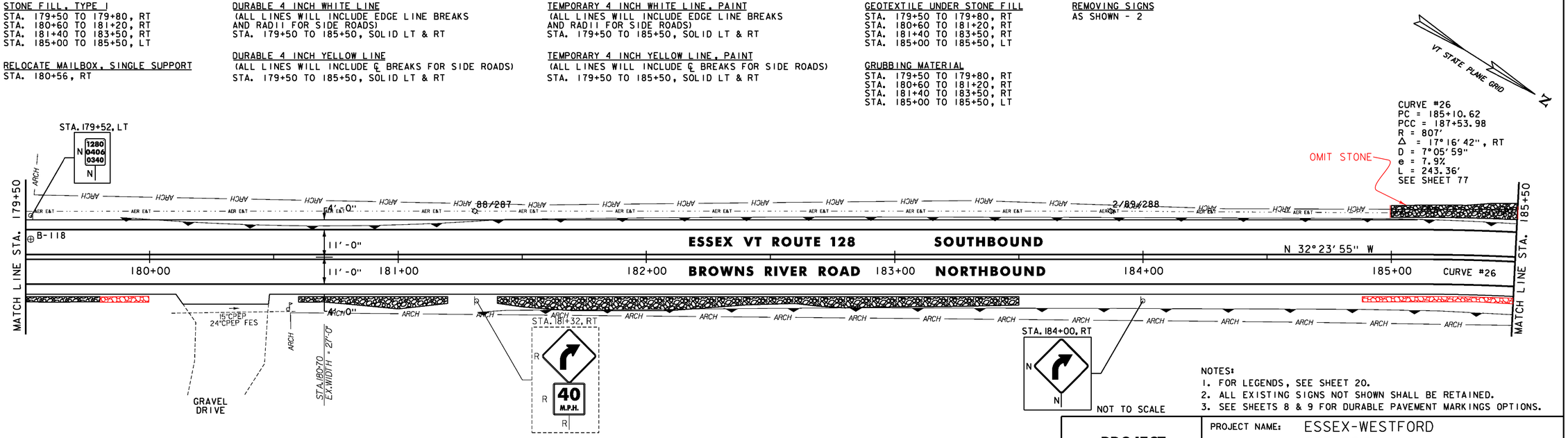
TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 179+50 TO 185+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 179+50 TO 185+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 179+50 TO 179+80, RT
STA. 180+60 TO 181+20, RT
STA. 181+40 TO 183+50, RT
STA. 185+00 TO 185+50, LT

GRUBBING MATERIAL
STA. 179+50 TO 179+80, RT
STA. 180+60 TO 181+20, RT
STA. 181+40 TO 183+50, RT
STA. 185+00 TO 185+50, LT

REMOVING SIGNS
AS SHOWN - 2



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-118	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #20

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l20.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 39 OF 239

STONE FILL, TYPE I
STA. 185+50 TO 187+00, LT
STA. 188+20 TO 188+50, RT
STA. 189+10 TO 191+30, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 188+16, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 185+50 TO 191+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 185+50 TO 191+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 185+50 TO 191+50, SOLID LT & RT

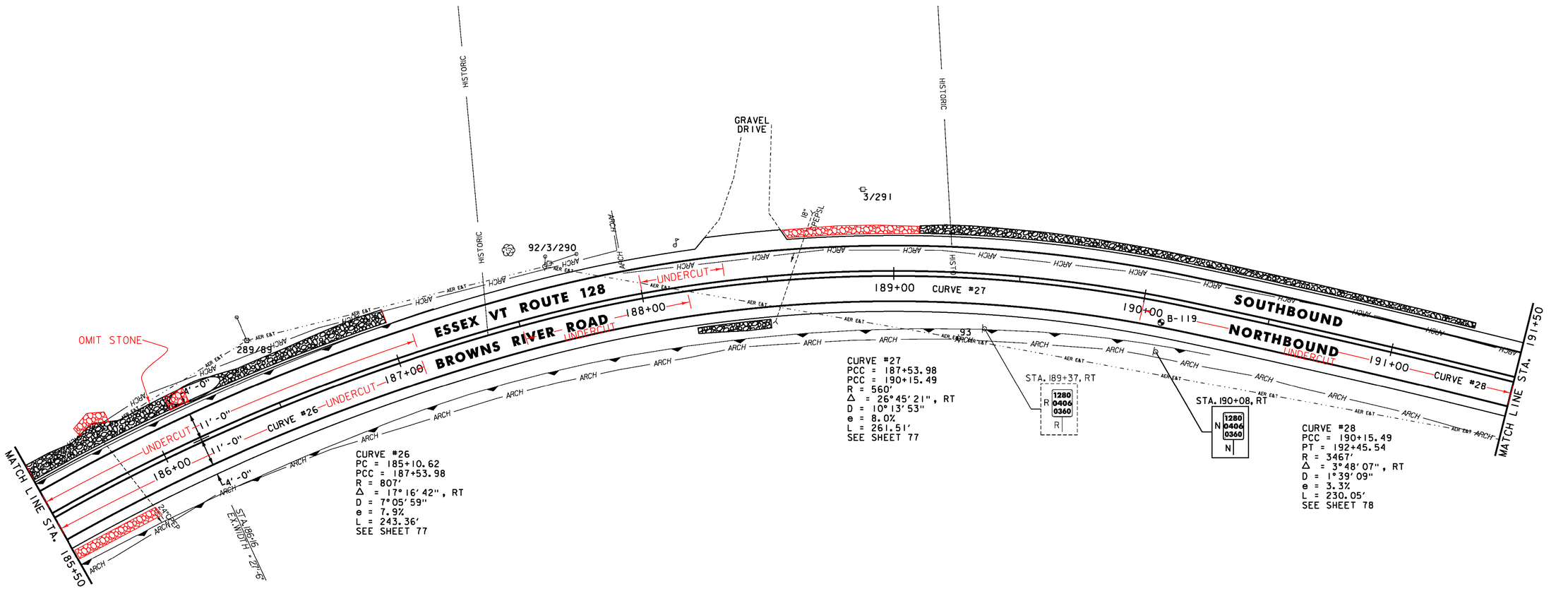
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 185+50 TO 191+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 185+50 TO 187+00, LT
STA. 188+20 TO 188+50, RT
STA. 189+10 TO 191+30, LT

GRUBBING MATERIAL
STA. 185+50 TO 187+00, LT
STA. 188+20 TO 188+50, RT
STA. 189+10 TO 191+30, LT

REMOVING SIGNS
AS SHOWN - 1

VT STATE PLANE GRID



CURVE #26
PC = 185+10.62
PCC = 187+53.98
R = 807'
Δ = 17°16'42", RT
D = 7°05'59"
e = 7.9%
L = 243.36'
SEE SHEET 77

CURVE #27
PCC = 187+53.98
PCC = 190+15.49
R = 560'
Δ = 26°45'21", RT
D = 10°13'53"
e = 8.0%
L = 261.51'
SEE SHEET 77

CURVE #28
PCC = 190+15.49
PT = 192+45.54
R = 3467'
Δ = 3°48'07", RT
D = 1°39'09"
e = 3.3%
L = 230.05'
SEE SHEET 78

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-119	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #21

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l21.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 40 OF 239

STONE FILL, TYPE I
STA. 196+30 TO 196+70, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 191+50 TO 197+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 191+50 TO 197+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 191+50 TO 197+50, SOLID LT & RT

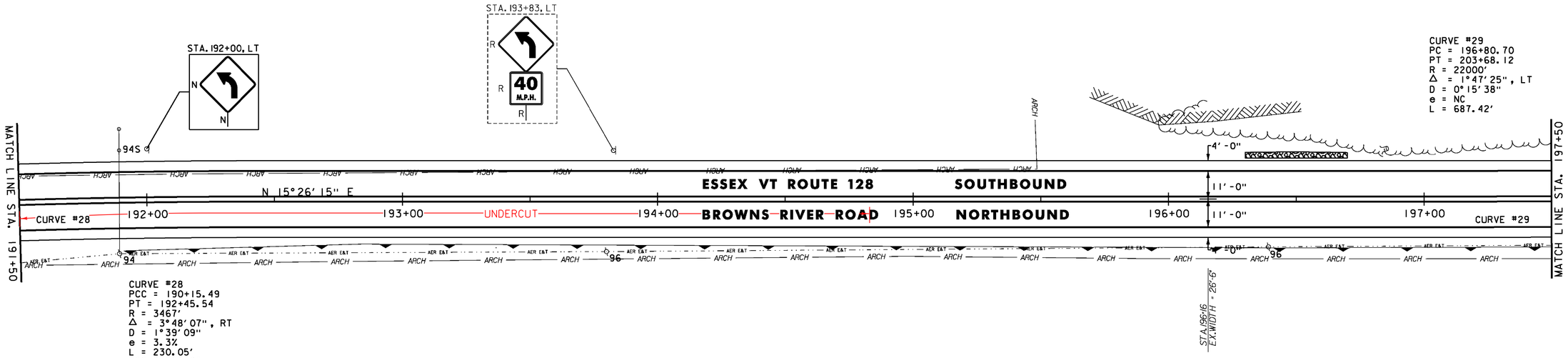
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 191+50 TO 197+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 196+30 TO 196+70, LT

GRUBBING MATERIAL
STA. 196+30 TO 196+70, LT

REMOVING SIGNS
AS SHOWN - 2

VT STATE PLANE GRID



SOLID ROCK EXCAVATION
STA. 202+00 TO 203+50, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 197+50 TO 203+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 197+50 TO 203+50, SOLID LT & RT

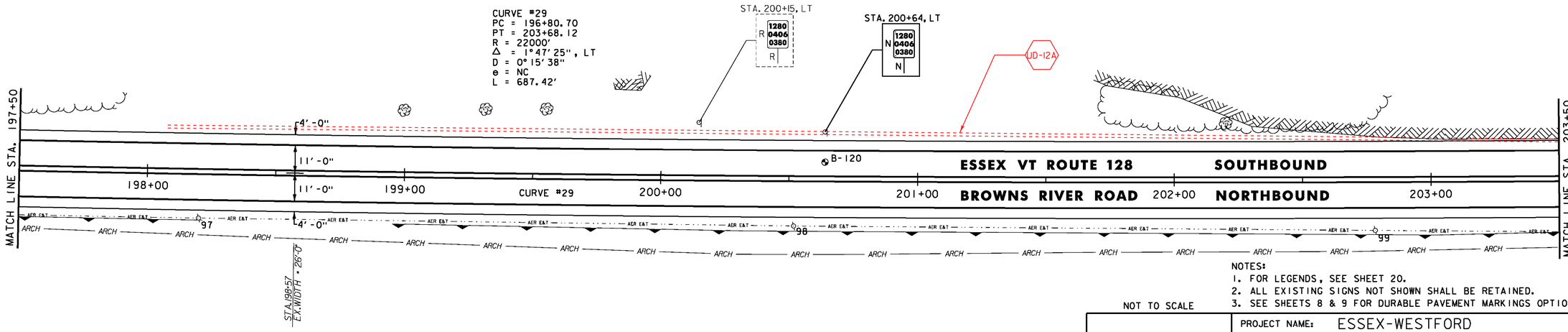
TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 197+50 TO 203+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 197+50 TO 203+50, SOLID LT & RT

REMOVING SIGNS
AS SHOWN - 1

UD-12A STA 198+10 TO 207+30, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

VT STATE PLANE GRID



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-120	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #22

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l22.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 41 OF 239

SOLID ROCK EXCAVATION
STA. 203+50 TO 205+00, LT

STONE FILL, TYPE I
STA. 204+90 TO 205+30, LT
STA. 207+40 TO 207+50, LT
STA. 208+50 TO 209+50, RT

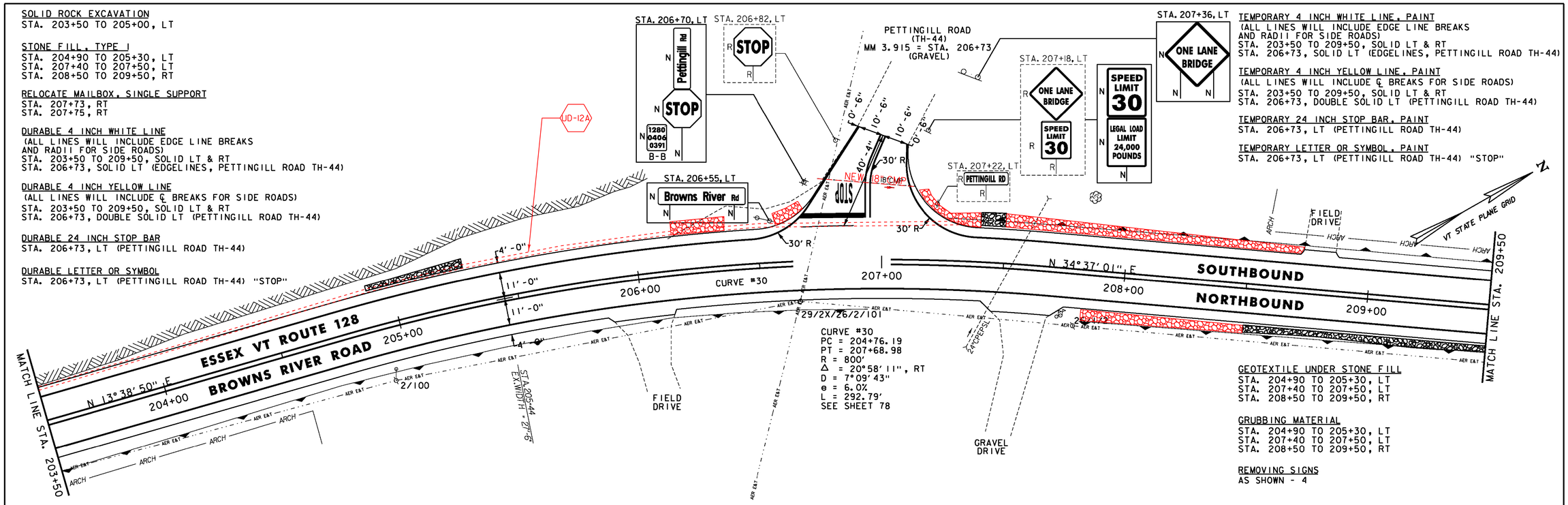
RELOCATE MAILBOX, SINGLE SUPPORT
STA. 207+73, RT
STA. 207+75, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 203+50 TO 209+50, SOLID LT & RT
STA. 206+73, SOLID LT (EDGELINES, PETTINGILL ROAD TH-44)

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 203+50 TO 209+50, SOLID LT & RT
STA. 206+73, DOUBLE SOLID LT (PETTINGILL ROAD TH-44)

DURABLE 24 INCH STOP BAR
STA. 206+73, LT (PETTINGILL ROAD TH-44)

DURABLE LETTER OR SYMBOL
STA. 206+73, LT (PETTINGILL ROAD TH-44) "STOP"



CURVE #30
PC = 204+76.19
PT = 207+68.98
R = 800'
Δ = 20°58'11", RT
D = 7°09'43"
e = 6.0%
L = 292.79'
SEE SHEET 78

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 203+50 TO 209+50, SOLID LT & RT
STA. 206+73, SOLID LT (EDGELINES, PETTINGILL ROAD TH-44)

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 203+50 TO 209+50, SOLID LT & RT
STA. 206+73, DOUBLE SOLID LT (PETTINGILL ROAD TH-44)

TEMPORARY 24 INCH STOP BAR, PAINT
STA. 206+73, LT (PETTINGILL ROAD TH-44)

TEMPORARY LETTER OR SYMBOL, PAINT
STA. 206+73, LT (PETTINGILL ROAD TH-44) "STOP"

GEOTEXTILE UNDER STONE FILL
STA. 204+90 TO 205+30, LT
STA. 207+40 TO 207+50, LT
STA. 208+50 TO 209+50, RT

GRUBBING MATERIAL
STA. 204+90 TO 205+30, LT
STA. 207+40 TO 207+50, LT
STA. 208+50 TO 209+50, RT

REMOVING SIGNS
AS SHOWN - 4

STONE FILL, TYPE I
STA. 210+00 TO 211+30, RT
STA. 210+00 TO 211+50, LT
STA. 211+90 TO 212+40, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 209+50 TO 215+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 209+50 TO 215+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 209+50 TO 215+50, SOLID LT & RT

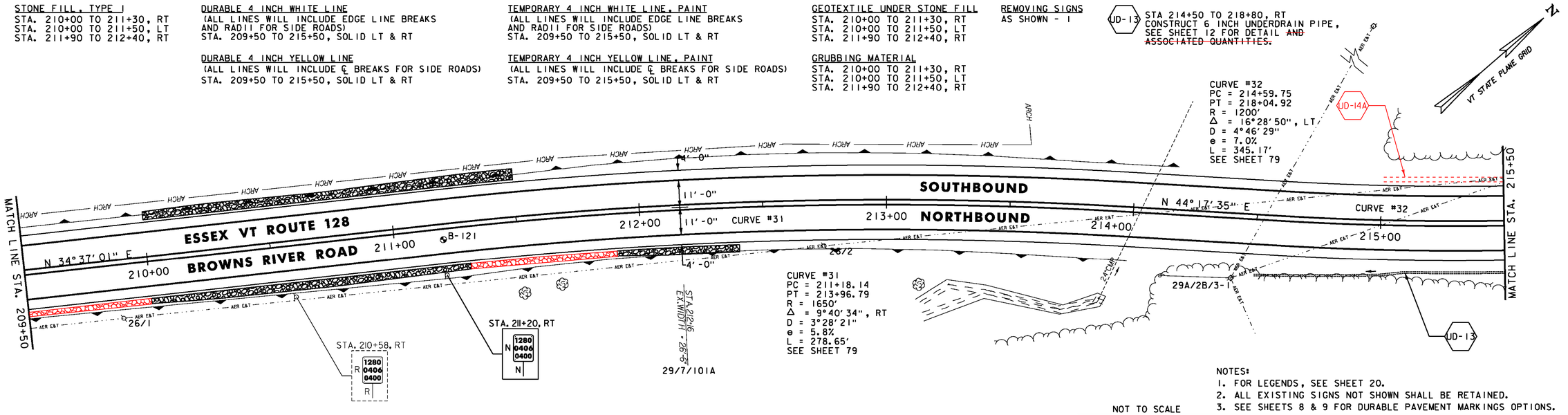
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 209+50 TO 215+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 210+00 TO 211+30, RT
STA. 210+00 TO 211+50, LT
STA. 211+90 TO 212+40, RT

GRUBBING MATERIAL
STA. 210+00 TO 211+30, RT
STA. 210+00 TO 211+50, LT
STA. 211+90 TO 212+40, RT

REMOVING SIGNS
AS SHOWN - 1

UD-13 STA 214+50 TO 218+80, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~



CURVE #31
PC = 211+18.14
PT = 213+96.79
R = 1650'
Δ = 9°40'34", RT
D = 3°28'21"
e = 5.8%
L = 278.65'
SEE SHEET 79

CURVE #32
PC = 214+59.75
PT = 218+04.92
R = 1200'
Δ = 16°28'50", LT
D = 4°46'29"
e = 7.0%
L = 345.17'
SEE SHEET 79

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-121	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #23

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l23.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC

STONE FILL, TYPE I
STA. 217+40 TO 217+90, RT
STA. 219+20 TO 219+50, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 217+15, LT
STA. 217+28, LT
STA. 220+77, LT
STA. 221+30, LT

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 218+72, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 215+50 TO 221+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 215+50 TO 221+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 215+50 TO 221+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 215+50 TO 221+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 217+40 TO 217+90, RT
STA. 219+20 TO 219+50, RT

GRUBBING MATERIAL
STA. 217+40 TO 217+90, RT
STA. 219+20 TO 219+50, RT

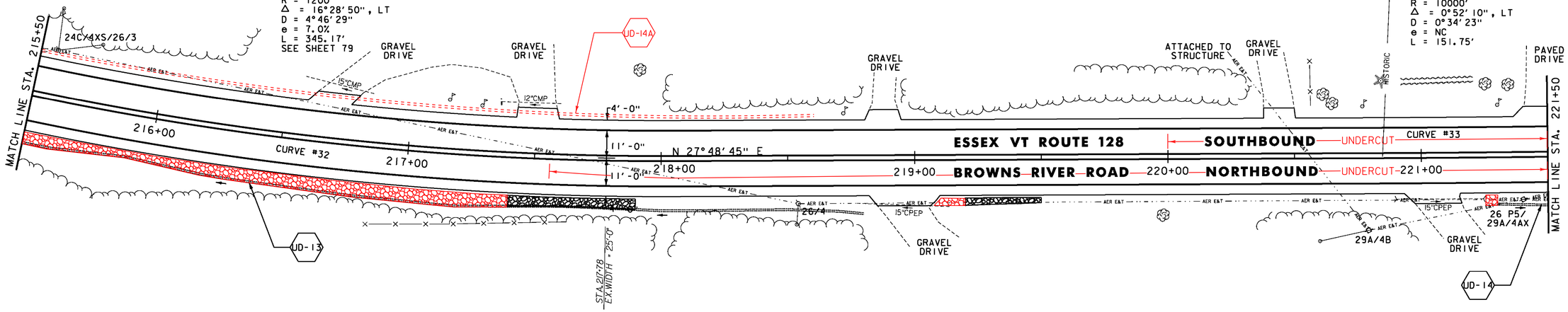
UD-14 221+25 TO 225+55, RT
STA ~~221+30, RT TO 225+50, LT~~
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~

UD-14A STA 215+00 TO 218+60, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.

VT STATE PLANE GRID

CURVE #32
PC = 214+59.75
PT = 218+04.92
R = 1200'
Δ = 16°28'50", LT
D = 4°46'29"
e = 7.0%
L = 345.17'
SEE SHEET 79

CURVE #33
PC = 220+72.89
PT = 222+24.64
R = 10000'
Δ = 0°52'10", LT
D = 0°34'23"
e = NC
L = 151.75'



STONE FILL, TYPE I
STA. 224+00 TO 227+50, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 221+50 TO 227+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 221+50 TO 227+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 221+50 TO 227+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 221+50 TO 227+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 224+00 TO 227+50, LT

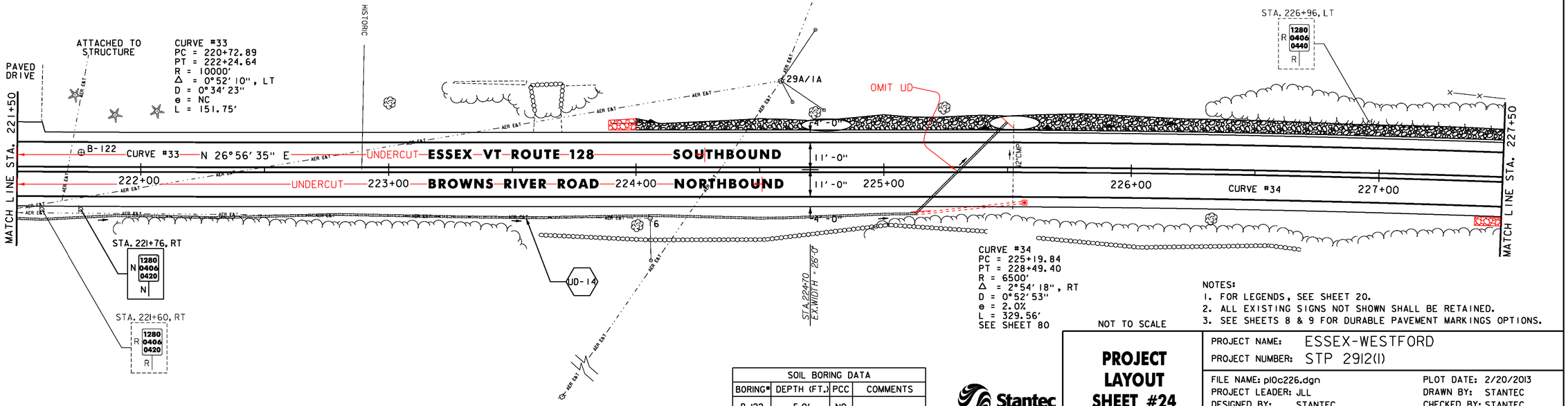
GRUBBING MATERIAL
STA. 224+00 TO 227+50, LT

REMOVING SIGNS
AS SHOWN - 2

VT STATE PLANE GRID

ATTACHED TO STRUCTURE

CURVE #33
PC = 220+72.89
PT = 222+24.64
R = 10000'
Δ = 0°52'10", LT
D = 0°34'23"
e = NC
L = 151.75'



CURVE #34
PC = 225+19.84
PT = 228+49.40
R = 6500'
Δ = 2°54'18", RT
D = 0°52'53"
e = 2.0%
L = 329.56'
SEE SHEET 80

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-122	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #24

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l24.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC

STONE FILL, TYPE I
STA. 227+50 TO 228+70, LT
STA. 229+10 TO 229+50, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
ESSEX STA. 227+50 TO 232+37.28, SOLID LT & RT
WESTFORD STA. 0+00 TO 0+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
ESSEX STA. 227+50 TO 232+32, SOLID LT & RT
ESSEX STA. 232+32 TO 232+37.28, SOLID LT, DASHED RT
WESTFORD STA. 0+00 TO 0+50, SOLID LT, DASHED RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
ESSEX STA. 227+50 TO 232+37.28, SOLID LT & RT
WESTFORD STA. 0+00 TO 0+50, SOLID LT & RT

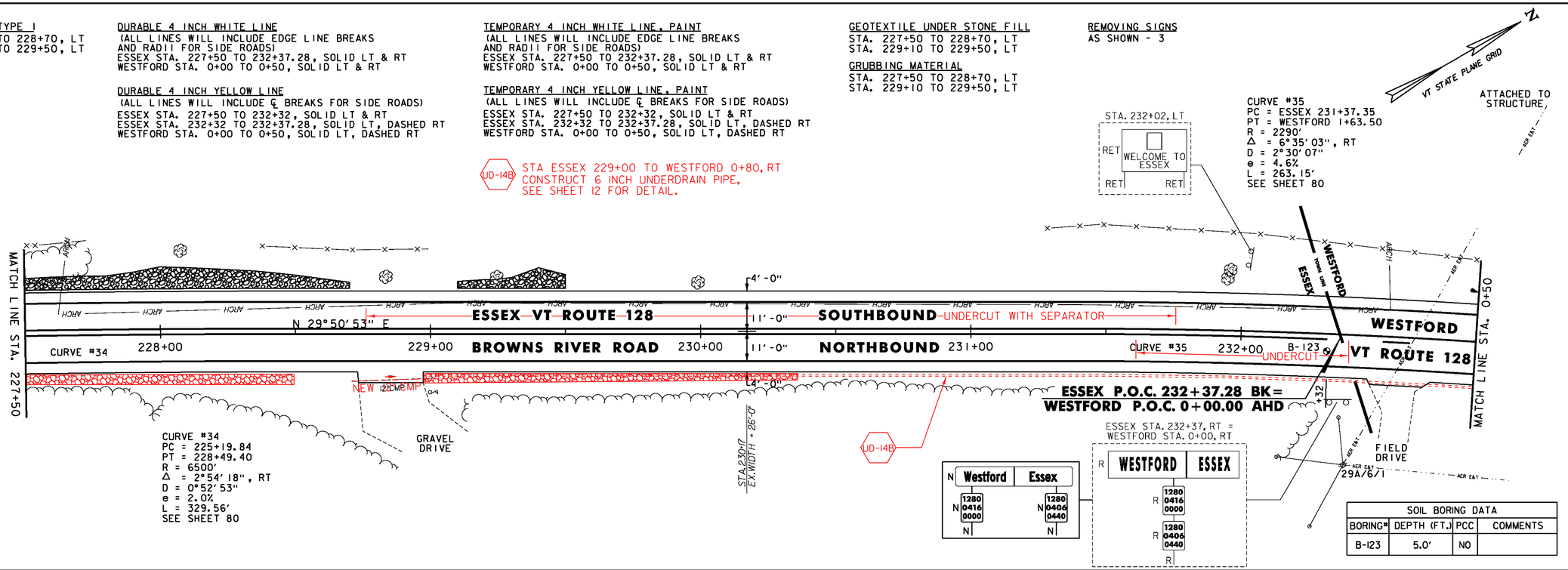
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
ESSEX STA. 227+50 TO 232+32, SOLID LT & RT
ESSEX STA. 232+32 TO 232+37.28, SOLID LT, DASHED RT
WESTFORD STA. 0+00 TO 0+50, SOLID LT, DASHED RT

UD-14B STA ESSEX 229+00 TO WESTFORD 0+80, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

GEOTEXTILE UNDER STONE FILL
STA. 227+50 TO 228+70, LT
STA. 229+10 TO 229+50, LT

GRUBBING MATERIAL
STA. 227+50 TO 228+70, LT
STA. 229+10 TO 229+50, LT

REMOVING SIGNS
AS SHOWN - 3



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-123	5.0'	NO	

STONE FILL, TYPE I
STA. 0+50 TO 0+80, LT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 1+57, LT
STA. 4+92, LT
STA. 6+11, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 0+50 TO 6+50, SOLID LT & RT

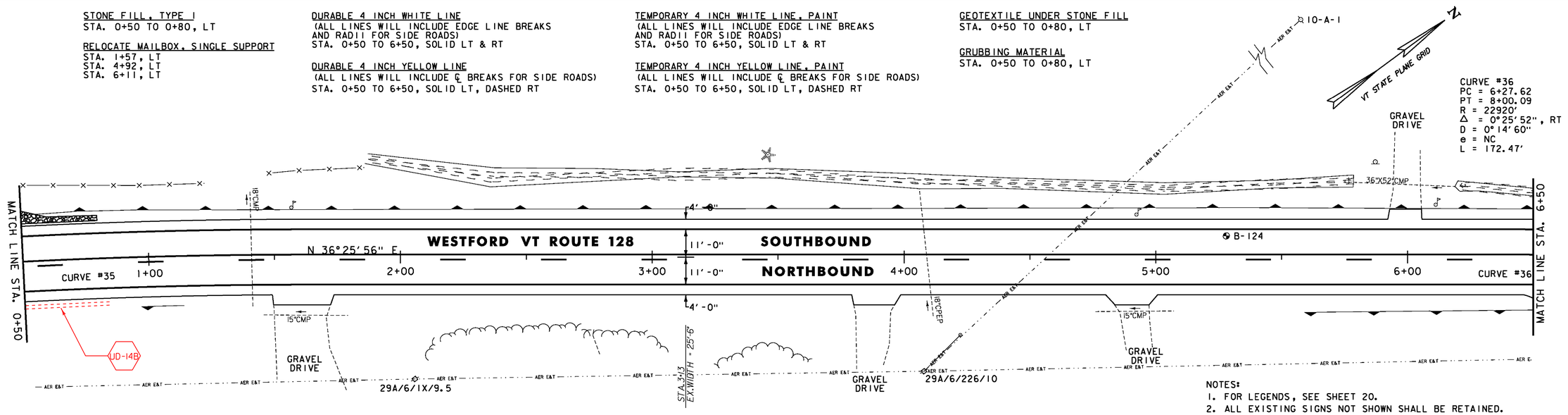
DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 0+50 TO 6+50, SOLID LT, DASHED RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 0+50 TO 6+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 0+50 TO 6+50, SOLID LT, DASHED RT

GEOTEXTILE UNDER STONE FILL
STA. 0+50 TO 0+80, LT

GRUBBING MATERIAL
STA. 0+50 TO 0+80, LT



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

CURVE #35
PC = ESSEX 231+37.35
PT = WESTFORD 1+63.50
R = 2290'
Δ = 6°35'03", RT
D = 2°30'07"
e = 4.6%
L = 263.15'
SEE SHEET 80

SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-124	5.0'	NO	

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #25

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l25.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 44 OF 239

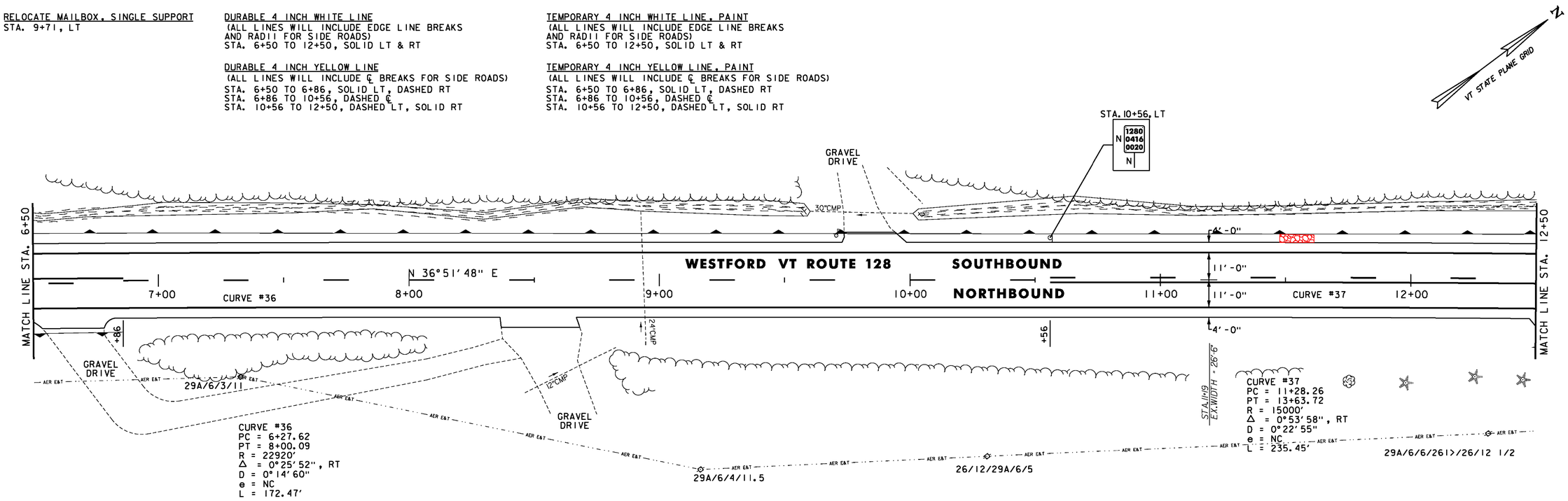
RELOCATE MAILBOX, SINGLE SUPPORT
STA. 9+71, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 6+50 TO 12+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 6+50 TO 6+86, SOLID LT, DASHED RT
STA. 6+86 TO 10+56, DASHED ℄
STA. 10+56 TO 12+50, DASHED LT, SOLID RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 6+50 TO 12+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 6+50 TO 6+86, SOLID LT, DASHED RT
STA. 6+86 TO 10+56, DASHED ℄
STA. 10+56 TO 12+50, DASHED LT, SOLID RT



SOLID ROCK EXCAVATION
STA. 17+50 TO 18+50, LT

STONE FILL, TYPE I
STA. 16+50 TO 18+50, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 12+60, LT
STA. 12+64, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 12+50 TO 18+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 12+50 TO 18+48, DASHED LT, SOLID RT
STA. 18+48 TO 18+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 12+50 TO 18+50, SOLID LT & RT

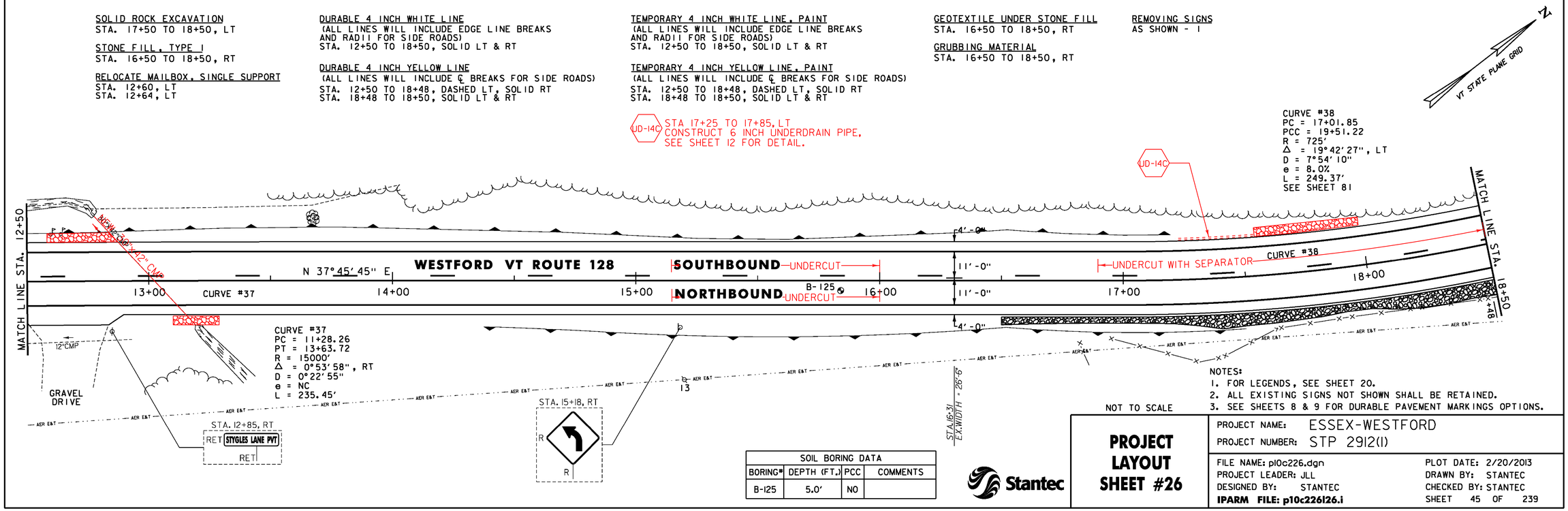
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 12+50 TO 18+48, DASHED LT, SOLID RT
STA. 18+48 TO 18+50, SOLID LT & RT

JD-14C STA. 17+25 TO 17+85, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE.
SEE SHEET 12 FOR DETAIL.

GEOTEXTILE UNDER STONE FILL
STA. 16+50 TO 18+50, RT

GRUBBING MATERIAL
STA. 16+50 TO 18+50, RT

REMOVING SIGNS
AS SHOWN - 1



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-125	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #26

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l26.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 45 OF 239

SOLID ROCK EXCAVATION
STA. 18+50 TO 20+00, LT

STONE FILL, TYPE I
STA. 18+50 TO 21+80, RT
STA. 20+40 TO 20+60, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 18+50 TO 24+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 18+50 TO 24+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 18+50 TO 24+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 18+50 TO 24+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 18+50 TO 21+80, RT
STA. 20+40 TO 20+60, LT

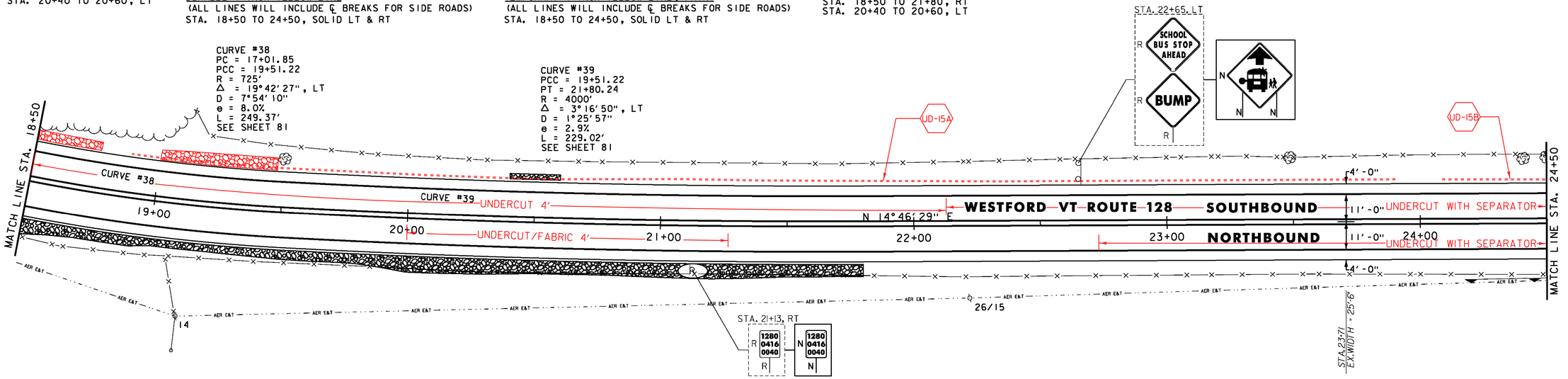
GRUBBING MATERIAL
STA. 18+50 TO 21+80, RT
STA. 20+40 TO 20+60, LT

REMOVING SIGNS
AS SHOWN - 1

VT STATE PLANE GRID

CURVE #38
PC = 17+01.85
PCC = 19+51.22
R = 725'
Δ = 19°42'27", LT
D = 7°54'10"
e = 8.0%
L = 249.37'
SEE SHEET 81

CURVE #39
PCC = 19+51.22
PT = 21+80.24
R = 4000'
Δ = 3°16'50", LT
D = 1°25'57"
e = 2.9%
L = 229.02'
SEE SHEET 81



STONE FILL, TYPE I
STA. 25+00 TO 27+10, RT
STA. 26+90 TO 27+70, LT
STA. 27+90 TO 30+30, RT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 24+50 TO 30+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 24+50 TO 30+50, SOLID LT & RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 24+50 TO 30+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 24+50 TO 30+50, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 25+00 TO 27+10, RT
STA. 26+90 TO 27+70, LT
STA. 27+90 TO 30+30, RT

GRUBBING MATERIAL
STA. 25+00 TO 27+10, RT
STA. 26+90 TO 27+70, LT
STA. 27+90 TO 30+30, RT

REMOVING SIGNS
AS SHOWN - 1

UD-15 26+80 TO 31+00, RT
STA ~~26+80, LT TO 32+00, RT~~
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL ~~AND ASSOCIATED QUANTITIES.~~

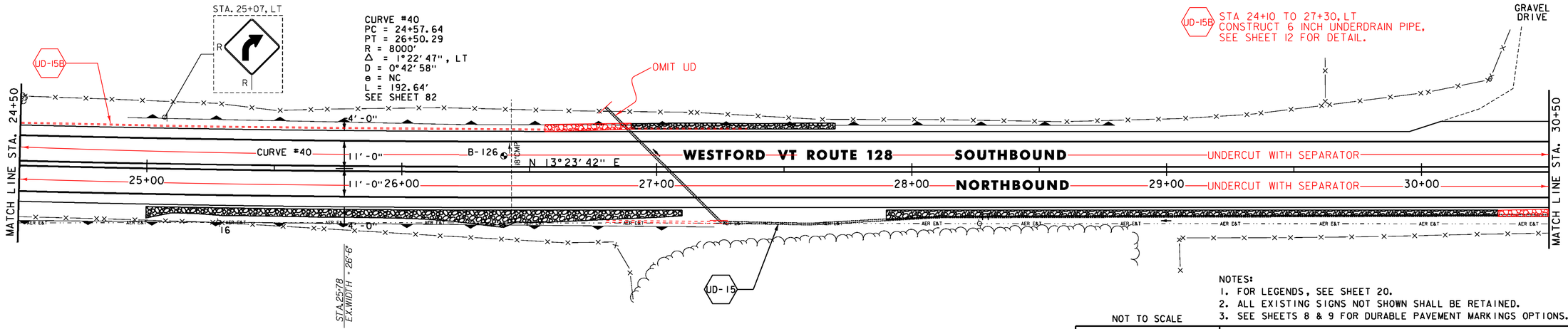
UD-15A STA 18+90 TO 23+90, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.

UD-15B STA 24+10 TO 27+30, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE, SEE SHEET 12 FOR DETAIL.

VT STATE PLANE GRID

STA. 25+07, LT

CURVE #40
PC = 24+57.64
PT = 26+50.29
R = 8000'
Δ = 1°22'47", LT
D = 0°42'58"
e = NC
L = 192.64'
SEE SHEET 82



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

SOIL BORING DATA			
BORING*	DEPTH (FT.)	PCC	COMMENTS
B-126	5.0'	NO	

Stantec

PROJECT LAYOUT SHEET #27

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c22627.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC

STONE FILL, TYPE I
STA. 35+50 TO 36+10, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 32+21, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 30+50 TO 36+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 30+50 TO 32+74, SOLID LT & RT
STA. 32+74 TO 36+50, SOLID LT, DASHED RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 30+50 TO 36+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 30+50 TO 32+74, SOLID LT & RT
STA. 32+74 TO 36+50, SOLID LT, DASHED RT

GEOTEXTILE UNDER STONE FILL
STA. 35+50 TO 36+10, RT

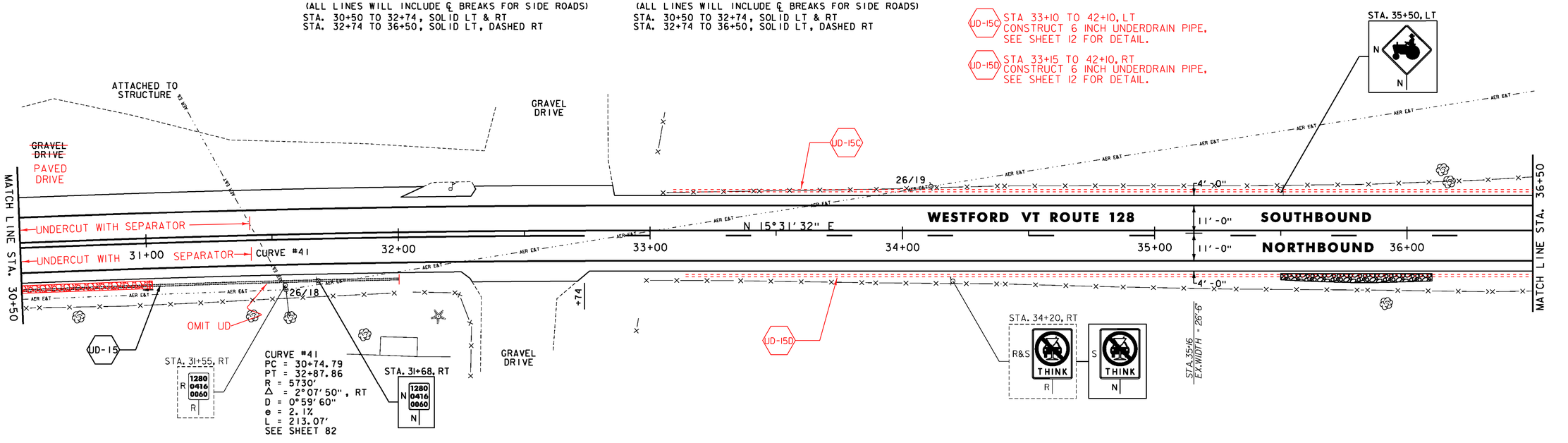
GRUBBING MATERIAL
STA. 35+50 TO 36+10, RT

REMOVING SIGNS
AS SHOWN - 2

ERECTING SALVAGED SIGNS
AS SHOWN - 1

UD-15C STA 33+10 TO 42+10, LT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

UD-15D STA 33+15 TO 42+10, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.



STONE FILL, TYPE I
STA. 38+40 TO 39+20, RT
STA. 41+40 TO 42+20, RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA. 39+31, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 36+50 TO 42+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 36+50 TO 40+66, SOLID LT, DASHED RT
STA. 40+66 TO 42+50, DASHED ℄

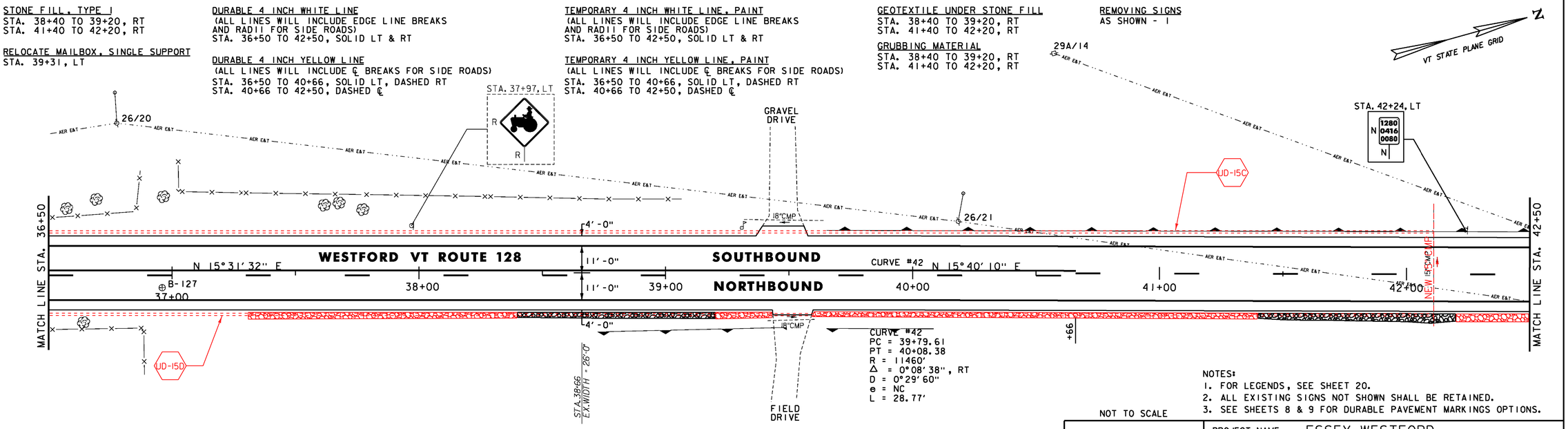
TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 36+50 TO 42+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 36+50 TO 40+66, SOLID LT, DASHED RT
STA. 40+66 TO 42+50, DASHED ℄

GEOTEXTILE UNDER STONE FILL
STA. 38+40 TO 39+20, RT
STA. 41+40 TO 42+20, RT

GRUBBING MATERIAL
STA. 38+40 TO 39+20, RT
STA. 41+40 TO 42+20, RT

REMOVING SIGNS
AS SHOWN - 1



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-127	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #28

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l28.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 47 OF 239

STONE FILL, TYPE I
STA. 42+70 TO 43+70, LT
STA. 45+10 TO 46+00, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 42+50 TO 48+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 42+50 TO 48+50, DASHED ℄

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 42+50 TO 48+50, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 42+50 TO 48+50, DASHED ℄

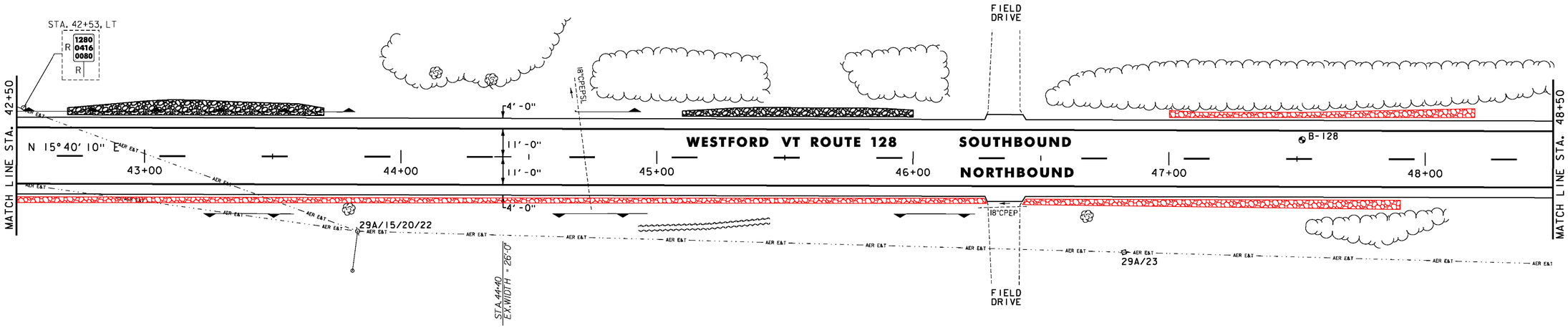
GEOTEXTILE UNDER STONE FILL
STA. 42+70 TO 43+70, LT
STA. 45+10 TO 46+00, LT

GRUBBING MATERIAL
STA. 42+70 TO 43+70, LT
STA. 45+10 TO 46+00, LT

REMOVING SIGNS
AS SHOWN - 1

UD-15E STA 49+60 TO 54+50, RT
CONSTRUCT 6 INCH UNDERDRAIN PIPE,
SEE SHEET 12 FOR DETAIL.

VT STATE PLANE GRID



SOIL BORING DATA			
BORING#	DEPTH (FT.)	PCC	COMMENTS
B-128	5.0'	NO	

STONE FILL, TYPE I
STA. 48+70 TO 50+80, RT
STA. 49+00 TO 49+30, LT
STA. 52+70 TO 54+30, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 48+50 TO 54+50, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 48+50 TO 49+63, DASHED ℄
STA. 49+63 TO 54+50, DASHED LT, SOLID RT

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 48+50 TO 54+50, SOLID LT & RT

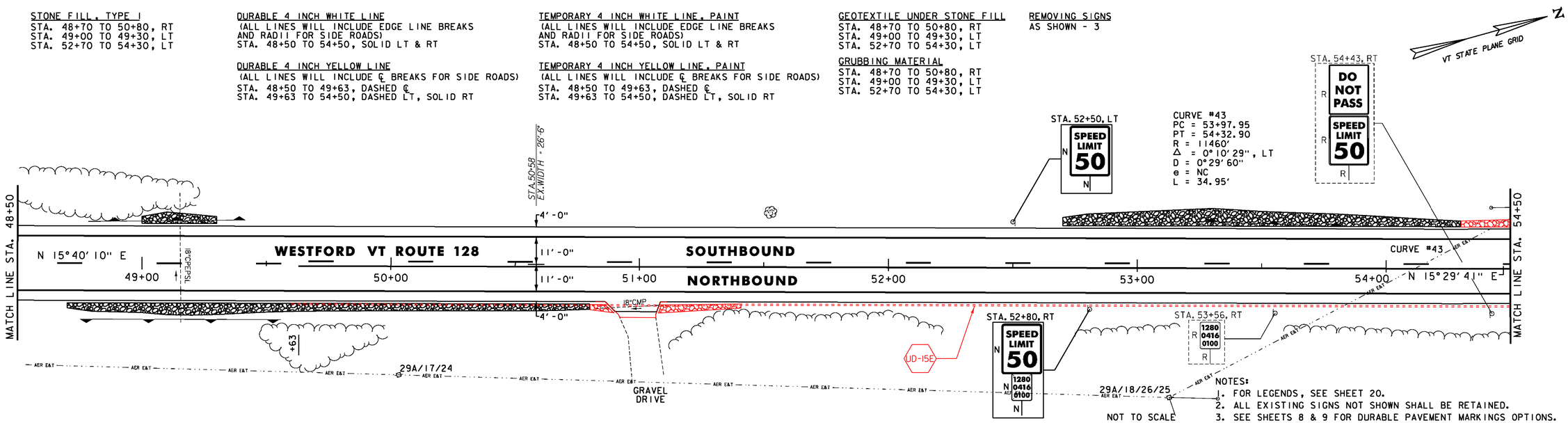
TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 48+50 TO 49+63, DASHED ℄
STA. 49+63 TO 54+50, DASHED LT, SOLID RT

GEOTEXTILE UNDER STONE FILL
STA. 48+70 TO 50+80, RT
STA. 49+00 TO 49+30, LT
STA. 52+70 TO 54+30, LT

GRUBBING MATERIAL
STA. 48+70 TO 50+80, RT
STA. 49+00 TO 49+30, LT
STA. 52+70 TO 54+30, LT

REMOVING SIGNS
AS SHOWN - 3

VT STATE PLANE GRID



NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

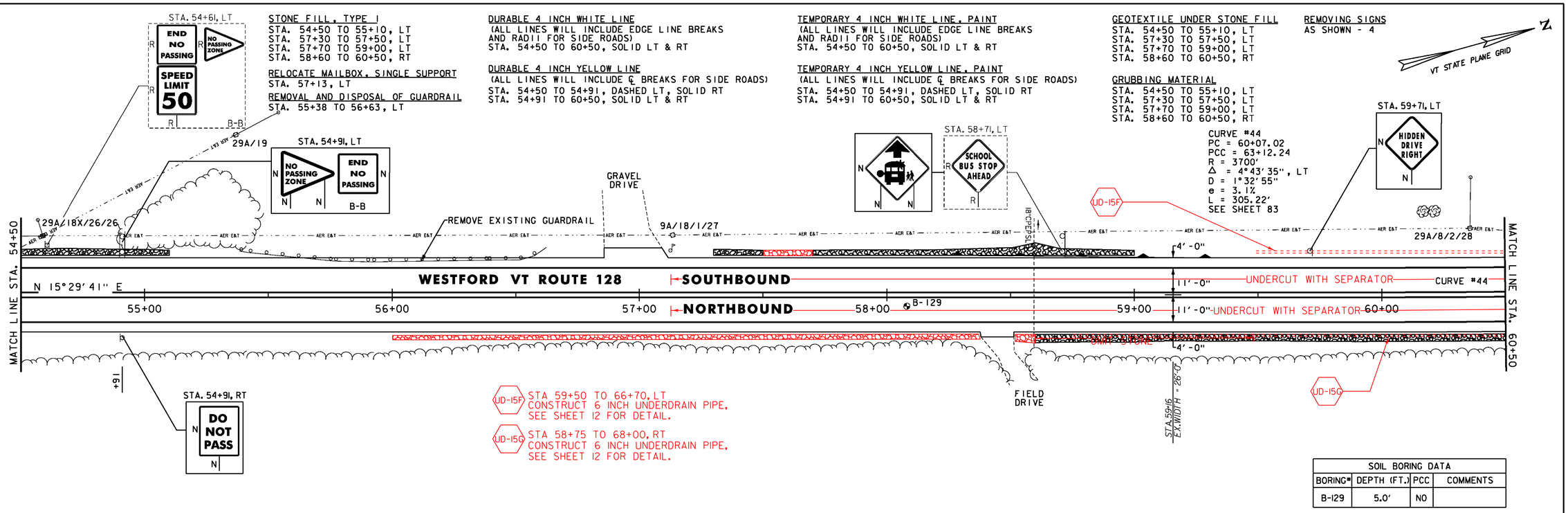
NOT TO SCALE

Stantec

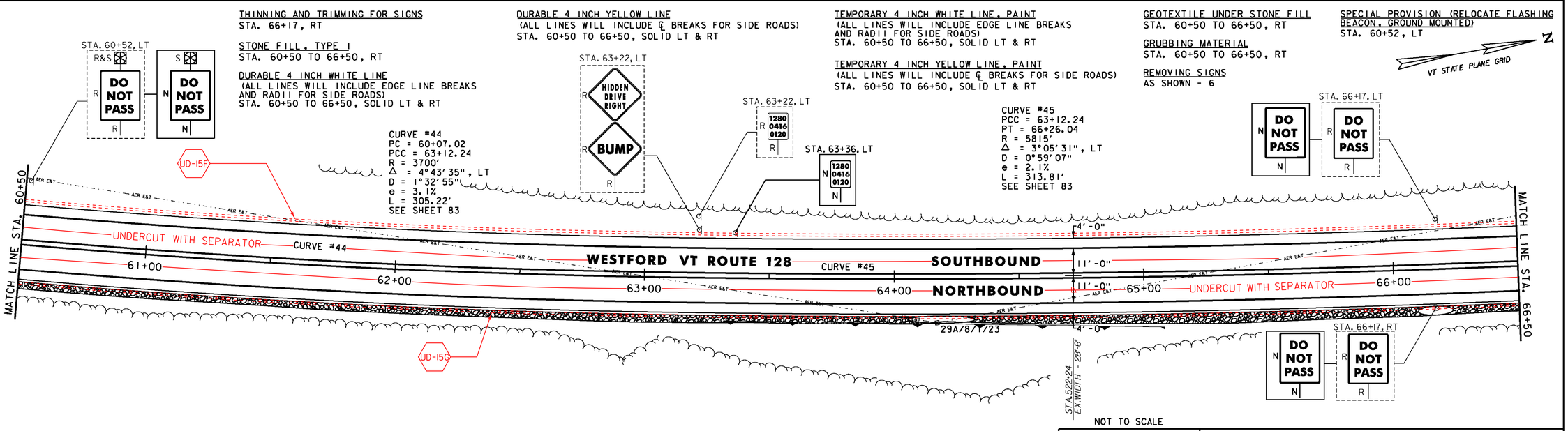
PROJECT LAYOUT SHEET #29

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l29.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC



SOIL BORING DATA			
BORING*	DEPTH (FT.)	PCC	COMMENTS
B-129	5.0'	NO	



NOT TO SCALE

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

Stantec

PROJECT LAYOUT SHEET #30

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l30.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 49 OF 239

STONE FILL, TYPE I
STA. 66+50 TO 67+20, RT

RELOCATE MAILBOX, MULTIPLE SUPPORT
STA. 66+75, LT

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 66+50 TO 68+85.12, SOLID LT & RT

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 66+50 TO 68+85.12, SOLID LT & RT

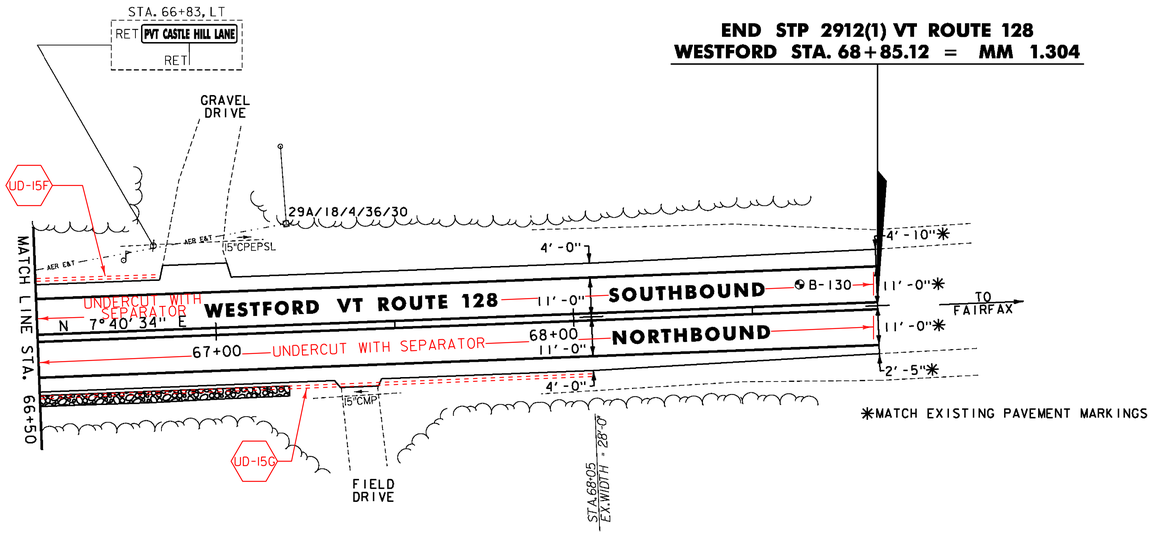
TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINE BREAKS AND RADII FOR SIDE ROADS)
STA. 66+50 TO 68+85.12, SOLID LT & RT

TEMPORARY 4 INCH YELLOW LINE, PAINT
(ALL LINES WILL INCLUDE ℄ BREAKS FOR SIDE ROADS)
STA. 66+50 TO 68+85.12, SOLID LT & RT

GEOTEXTILE UNDER STONE FILL
STA. 66+50 TO 67+20, RT

GRUBBING MATERIAL
STA. 66+50 TO 67+20, RT

VT STATE PLANE GRID



END STP 2912(1) VT ROUTE 128
WESTFORD STA. 68+85.12 = MM 1.304

SOIL BORING DATA			
BORING*	DEPTH (FT.)	PCC	COMMENTS
B-130	5.0'	NO	

NOTES:
1. FOR LEGENDS, SEE SHEET 20.
2. ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED.
3. SEE SHEETS 8 & 9 FOR DURABLE PAVEMENT MARKINGS OPTIONS.

NOT TO SCALE

Stantec

PROJECT LAYOUT SHEET #31

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226l31.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 50 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 01

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (In)	HEIGHT (In)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (In) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (In) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (In) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
ESSEX																																				
0+91, RT	WEST VERMONT 15 / NORTH VERMONT 128	1	24	12	2.00						2						X	X														*2	M3-4 GREEN ON WHITE			E-136B
		1	24	12	2.00																												M3-1 GREEN ON WHITE			E-136B
		1	24	24	4.00																												MI-5			E-136B
		1	30	24	5.00																												MI-5			E-136B
		1	21	15	2.19																												M6-1 GREEN ON WHITE			E-136B
		1	21	15	2.19																												M6-1 GREEN ON WHITE			E-136B
0+91, LT		1	9	15	0.94																												R10-3e MOUNT ON PEDESTRIAN SIGNAL POLE	X		
0+94, LT	EAST VERMONT 15 / WEST VERMONT 15	1	24	12	2.00						2					X		X														*2	M3-2 GREEN ON WHITE			E-136B
		1	24	12	2.00																												M3-4 GREEN ON WHITE			E-136B
		1	24	24	4.00																												MI-5			E-136B
		1	24	24	4.00																												MI-5			E-136B
		1	21	15	2.19																												M6-1 GREEN ON WHITE			E-136B
		1	21	15	2.19																												M6-3 GREEN ON WHITE			E-136B
0+96, RT		1	9	15	0.94																												R10-3e MOUNT ON PEDESTRIAN SIGNAL POLE	X		
I+00, RT	Westford 8 / Fairfax 12 / Jericho 3 / NORTH VERMONT 128 / EAST VERMONT 15	1	72	12	6.00																												VDI-1a		66	
		1	72	12	6.00																												VDI-1a		66	
		1	72	12	6.00																												VDI-1a		66	
		1	24	12	2.00						2													2	190								M3-1 GREEN ON WHITE			E-136B
		1	24	12	2.00																												M3-2 GREEN ON WHITE			E-136B
		1	24	24	4.00																												MI-5			E-136B
		1	30	24	5.00																												MI-5			E-136B
		1	21	15	2.19																												M6-3 GREEN ON WHITE			E-136B
		1	21	15	2.19																												M6-1 GREEN ON WHITE			E-136B
I+20, RT	NORTH VERMONT 128	1	24	12	2.00						1					X		X															M3-1 GREEN ON WHITE			E-136B
		1	30	24	5.00																												MI-5			E-136B
2+60, RT	SPEED LIMIT 30	1	24	30	5.00						1					X		X															R2-1	X		
3+00, LT	Essex Jct 3 / Burlington 10 / Jericho 3	1	72	12	6.00						2						X	X															VDI-1a USE SOIL BEARING SLIP BASES. PAID AS ITEM 900.620 SPECIAL		66	
		1	72	12	6.00																												VDI-1a PROVISION (SOIL BEARING SLIP BASE) (2 1/2").		66	
		1	72	12	6.00																												VDI-1a		66	
											FT	FT	FT	FT	FT 61	FT 64		EA	LB	LB	LB		LB 190	LB	LB	LB									
TOTALS					SF 101.02	SF	EA.	SF			FT			FT 125					LB			EA. 2		LB 190			EA.	EA.	LB						

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss01.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 51 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 02

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (In)	HEIGHT (In)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	FLANGED CHANNEL lb/ft 2.0	FLANGED CHANNEL lb/ft 3.0	SQUARE STEEL (In) lb/ft 1.75 (1.88)	SQUARE STEEL (In) lb/ft 2.0 (2.42)	SQUARE STEEL (In) lb/ft 2.5 (3.35)	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (In) lb/ft 3.0 (1.3)	TUBULAR ALUMINUM Ø (In) lb/ft 4.0 (1.7)	TUBULAR ALUMINUM Ø (In) lb/ft 4.0 MOD (1.7)	TUBULAR STEEL FOUND-ATION	TUBULAR STEEL Ø (In) lb/ft 3.0 (7.6)	TUBULAR STEEL Ø (In) lb/ft 3.5 (9.0)	TUBULAR STEEL Ø (In) lb/ft 4.0 (10.8)	TUBULAR STEEL Ø (In) lb/ft 5.0 (14.6)	W-SHAPE STEEL FTG. SIZE 24"	W-SHAPE STEEL FTG. SIZE 30"	W-SHAPE STEEL WEIGHT	W-SHAPE STEEL POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
ESSEX (CONT.)																																				
3+51, RT		1 1	36 30	36 18	9.00 3.75						2					X		X																SI-1 (FLUORESCENT YELLOW-GREEN) W16-9P (FLUORESCENT YELLOW-GREEN)	X X		
3+80, RT		1	6	8	0.33						1				X			X																VD-701			E-134
4+28, LT		1	6	8	0.33						1				X			X																VD-701			E-134
5+00, LT		1 1 1 1	21 24 24 30	15 12 24 24	2.19 2.00 4.00 5.00						2					X		X																M2-1 GREEN ON WHITE M4-6 M1-5 M1-5			E-136B E-140 E-136B E-136B
5+22, RT		1 1	36 24	36 12	9.00 2.00						2					X		X																SI-1 (FLUORESCENT YELLOW-GREEN) W16-7P (FLUORESCENT YELLOW-GREEN)	X X		
5+28, LT		1 1	36 24	36 12	9.00 2.00						2					X		X																SI-1 (FLUORESCENT YELLOW-GREEN) W16-7P (FLUORESCENT YELLOW-GREEN)	X X		
5+33, RT		1	24	30	5.00						1					X		X																VR-017			E-141
5+40, LT		1	48	12	4.00						2					X		X																D3-1		67	
"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."		**TOTALS**	SF 57.60	SF	EA.	SF			FT	FT	FT	FT 22	FT 165	FT 187		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB							

TRAFFIC SIGN SUMMARY SHEET #2

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss02.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 52 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 03

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	FLANGED CHANNEL lb/ft 2.0	FLANGED CHANNEL lb/ft 3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	SQUARE STEEL (in) 2.0 lb/ft 2.42	SQUARE STEEL (in) 2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	TUBULAR ALUMINUM Ø (in) 4.0 lb/ft 1.7	TUBULAR ALUMINUM Ø (in) 4.0 MOD lb/ft 1.7	FOUNDATION	TUBULAR STEEL Ø (in) 3.0 lb/ft 7.6	TUBULAR STEEL Ø (in) 3.5 lb/ft 9.0	TUBULAR STEEL Ø (in) 4.0 lb/ft 10.8	TUBULAR STEEL Ø (in) 5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	W-SHAPE STEEL FTG. SIZE 30"	W-SHAPE STEEL WEIGHT	W-SHAPE STEEL POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
ESSEX (CONT.)																																				
5+55, LT	Browns River Rd STOP 1280 0406 0010 B-B	1	60	12	5.00						2					X		X																D3-1		67	
		1	30	30	6.25																													R1-1	X		
		1	6	10	0.42																													VD-700			E-138
5+84, RT	Alder Ln STOP 1280 0406 0010 B-B	1	36	12	3.00						1					X		X																D3-1		67	
		1	30	30	6.25																													R1-1	X		
		1	6	10	0.42																													VD-700			E-138
5+90, RT	Browns River Rd	1	60	12	5.00						2					X		X																D3-1		67	
6+19, LT	SPEED LIMIT 25 LEGAL LOAD LIMIT 24,000 POUNDS	1	24	30	5.00						1						X	X																R2-1	X		
		1	24	30	5.00																													VR-017			E-141
7+88, RT	SCHOOL BUS TURN AHEAD	1	36	36	9.00						2					X		X																S3-2 SALVAGE EXISTING BEACONS AND MOUNT ABOVE NEW SIGN. BEACON WORK PAID AS ITEM 900.620 SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)	X		
10+56, RT	1280 0406 0020	1	6	10	0.42						1				X			X																VD-700			E-138
TOTALS			SF 45.76	SF	EA.	SF					FT	FT	FT	FT 11	FT 105	FT 16		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB							

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #3

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss03.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 53 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 04

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS			NEW & SALVAGED SIGNS				EXIST POST		NEW SIGN POSTS																					SIGN DETAIL		
		EA	WIDTH (in)	HEIGHT (in)	"A"	"B"	SALV SIGN	SALV TIS	RETAIN	SALVAGE	NO. OF POSTS	FLANGED CHANNEL lb/ft			SQUARE STEEL (in) lb/ft			ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft			FOUNDATION	TUBULAR STEEL Ø (in) lb/ft				W-SHAPE STEEL FTG. SIZE		WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	DETAIL IN SHSM BOOK	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
												1.12	2.0	3.0	1.75	2.0	2.5			3.0	4.0	4.0 MOD		3.0	3.5	4.0	5.0	24"	30"							
															1.88	2.42	3.35			1.3	1.7	1.7		7.6	9.0	10.8	14.6									
ESSEX (CONT.)																																				
13+20, LT	SPEED LIMIT 30	1	30	36	7.50						1					X		X															R2-1	X		
13+20, RT	SPEED LIMIT 40	1	24	30	5.00						1					X		X															R2-1	X		
15+14, LT	SCHOOL BUS TURN AHEAD	1	36	36	9.00						2					X		X															S3-2 SALVAGE EXISTING BEACONS AND MOUNT ABOVE NEW SIGN. BEACON WORK PAID AS ITEM 900.620 SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)	X		
17+07, LT	AHEAD	1 1	36 30	36 18	9.00 3.75						2					X		X															S1-1 (FLUORESCENT YELLOW-GREEN) W16-9P (FLUORESCENT YELLOW-GREEN)	X X		
18+29, RT	35 M.P.H.	1 1	30 18	30 18	6.25 2.25						1							X	X														W1-2L W13-1P	X X		
19+25, LT	SPEED LIMIT 30	1	36	36	9.00						2					X		X															W3-5	X		
19+29, RT	B-B	2	18	24	6.00						1					X		X															W1-8	X		
20+49, RT	B-B	2	18	24	6.00						1					X		X															W1-8	X		
TOTALS		SF 63.75	SF	EA.	SF							FT	FT	FT	FT 166	FT 150	FT 16		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB						

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #4

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss04.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 54 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 05

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	FLANGED CHANNEL lb/ft 2.0	FLANGED CHANNEL lb/ft 3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	SQUARE STEEL (in) 2.0 lb/ft 2.42	SQUARE STEEL (in) 2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	TUBULAR ALUMINUM Ø (in) 4.0 lb/ft 1.7	TUBULAR ALUMINUM Ø (in) 4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	TUBULAR STEEL Ø (in) 3.0 lb/ft 7.6	TUBULAR STEEL Ø (in) 3.5 lb/ft 9.0	TUBULAR STEEL Ø (in) 4.0 lb/ft 10.8	TUBULAR STEEL Ø (in) 5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	W-SHAPE STEEL FTG. SIZE 30"	W-SHAPE STEEL WEIGHT	W-SHAPE STEEL POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
ESSEX (CONT.)																																				
21+12, LT	1280 0406 0040	1	6	10	0.42						1				X			X																VD-700			E-138
21+69, RT	B-B	2	18	24	6.00						1					X		X																W1-8	X		
23+84, LT		1	30	30	6.25						1						X	X																W1-2R	X		
	35 M.P.H.	1	18	18	2.25																													W13-1P	X		
29+25, RT		1	36	36	9.00						2					X		X																W1-10R	X		
	Thomas Ln	1	36	10	2.50																													W16-8p		68	
33+16, LT	Browns River Rd	1	60	12	5.00						2					X		X																D3-1		67	
33+26, LT	Thomas Ln	1	42	12	3.50						1					X		X																D3-1		67	
	STOP	1	30	30	6.25																													R1-1	X		
	1280 0406 0063 B-B	1	6	10	0.42																													VD-700			E-138
33+65, LT	LEGAL LOAD LIMIT 24,000 POUNDS	1	24	30	5.00						1					X		X																VR-017			E-141
36+00, RT		1	30	30	6.25						1					X		X																W11-15 FLUORESCENT YELLOW-GREEN	X		
	AHEAD	1	24	12	2.00																													W16-9P FLUORESCENT YELLOW-GREEN	X		
												FT	FT	FT	FT 11	FT 120	FT 16		EA	LB	LB	LB		LB	LB	LB	LB							
TOTALS			SF 54.84	SF	EA.	SF						FT			FT 147					LB			EA.	LB				EA.	EA.	LB					

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #5

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss05.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 55 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 06

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
ESSEX (CONT.)																																				
36+96, LT	SPEED LIMIT 40	1	30	36	7.50						1					X		X																R2-1	X		
37+37, RT	LEGAL LOAD LIMIT 24,000 POUNDS	1	24	30	5.00						1					X		X																VR-017			E-141
37+43, RT	STOP	1	30	30	6.25						1					X		X																RI-1	X		
37+77, RT	Irene Ave / STOP / 1280 0406 0072 B-B	1 1 1	36 30 6	12 30 10	3.00 6.25 0.42						1					X		X																D3-1 RI-1 VD-700	X	67	 E-138
37+90, RT	Browns River Rd	1	60	12	5.00						2					X		X																D3-1		67	
38+40, RT	SPEED LIMIT 50	1	24	30	5.00						1					X		X																R2-1	X		
39+00, LT	AHEAD	1 1	30 24	30 12	6.25 2.00						1					X		X																W11-15 FLUORESCENT YELLOW-GREEN W16-9P FLUORESCENT YELLOW-GREEN	X X		
41+00, LT	SPEED LIMIT 40	1	36	36	9.00						2					X		X																W3-5	X		
TOTALS					SF 55.67	SF	EA.	SF				FT	FT	FT	FT	FT 151	FT		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB						

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #6

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss06.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 56 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 07

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
ESSEX (CONT.)																																				
42+24, RT	BRIDGE 2 VT 128	1	6	8	0.33						1				X			X																VD-701			E-134
	1280 0406 0080	1	6	10	0.42																												VD-700			E-138
42+40, LT		1	12	36	3.00						1					X		X															OM3-L	X		
42+40, RT		1	12	36	3.00						1					X		X															OM3-R	X		
42+70, LT		1	12	36	3.00						1					X		X															OM3-R	X		
42+70, RT		1	12	36	3.00						1					X		X															OM3-L	X		
42+90, LT	BRIDGE 2 VT 128	1	6	8	0.33						1				X			X															VD-701			E-134
52+80, LT	1280 0406 0100	1	6	10	0.42						1				X			X															VD-700			E-138
54+00, RT	BRIDGE 3 VT 128	1	6	8	0.33						1				X			X															VD-701			E-134
54+40, LT		1	12	36	3.00						1					X		X															OM3-L	X		
54+40, RT		1	12	36	3.00						1					X		X															OM3-R	X		
55+34, LT		1	12	36	3.00						1					X		X															OM3-R	X		
55+34, LT	BRIDGE 3 VT 128	1	6	8	0.33						1				X			X															VD-701			E-134
55+35, RT		1	12	36	3.00						1					X		X															OM3-L	X		
TOTALS					SF 26.16	SF	EA.	SF				FT	FT	FT	FT 56	FT 112	FT 168		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB						

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #7

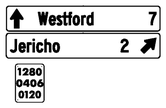
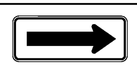
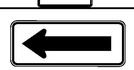
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss07.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 57 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 08

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	SIGN DIMENSIONS WIDTH (in)	SIGN DIMENSIONS HEIGHT (in)	NEW & SALVAGED SIGNS "A"	NEW & SALVAGED SIGNS "B"	NEW & SALVAGED SIGNS SALV SIGN	NEW & SALVAGED SIGNS SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	FLANGED CHANNEL lb/ft 2.0	FLANGED CHANNEL lb/ft 3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	SQUARE STEEL (in) 2.0 lb/ft 2.42	SQUARE STEEL (in) 2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	TUBULAR ALUMINUM Ø (in) 4.0 lb/ft 1.7	TUBULAR ALUMINUM Ø (in) 4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	TUBULAR STEEL Ø (in) 3.0 lb/ft 7.6	TUBULAR STEEL Ø (in) 3.5 lb/ft 9.0	TUBULAR STEEL Ø (in) 4.0 lb/ft 10.8	TUBULAR STEEL Ø (in) 5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	W-SHAPE STEEL FTG. SIZE 30"	W-SHAPE STEEL WEIGHT	W-SHAPE STEEL POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
ESSEX (CONT.)																																					
60+10, LT		1 1	36 18	36 18	9.00 2.25						2					X		X																WI-IL WI3-IP	 X	67	
60+10, RT		1 1	36 18	36 18	9.00 2.25						2					X		X																WI-IL WI3-IP	 X	67	
63+00, LT		1	24	30	5.00						1					X		X																R2-1	X		
63+50, RT		1 1 1	72 72 6	12 12 10	6.00 6.00 0.42						2					X		X																VDI-1a VDI-1a VD-700		66 66	 E-138
65+00, LT		1 1	24 30	12 24	2.00 5.00						1					X		X																M3-3 GREEN ON WHITE M1-5			E-136B E-136B
65+03, RT		1	48	24	8.00						2					X		X																WI-6L	X		
65+19, RT		1	48	24	8.00						2					X		X																WI-6R	X		
65+53, RT		1	48	24	8.00						2					X		X																WI-6R	X		
65+68, RT		1	24	30	5.00						1					X		X																VR-017			E-141
66+23, RT		1	48	24	8.00						2					X		X																WI-6L	X		
"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."												FT	FT	FT	FT	FT 256	FT		EA	LB	LB	LB		LB	LB	LB	LB									
	TOTALS				SF 83.92	SF	EA.	SF				FT			FT 256					LB			EA.	LB				EA.	EA.	LB						

TRAFFIC SIGN SUMMARY SHEET #8

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss08.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 58 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 09

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	SIGN DIMENSIONS WIDTH (in)	SIGN DIMENSIONS HEIGHT (in)	NEW & SALVAGED SIGNS "A"	NEW & SALVAGED SIGNS "B"	NEW & SALVAGED SIGNS SALV SIGN	NEW & SALVAGED SIGNS SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	FLANGED CHANNEL lb/ft 2.0	FLANGED CHANNEL lb/ft 3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	SQUARE STEEL (in) 2.0 lb/ft 2.42	SQUARE STEEL (in) 2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	TUBULAR ALUMINUM Ø (in) 4.0 lb/ft 1.7	TUBULAR ALUMINUM Ø (in) 4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	TUBULAR STEEL Ø (in) 3.0 lb/ft 7.6	TUBULAR STEEL Ø (in) 3.5 lb/ft 9.0	TUBULAR STEEL Ø (in) 4.0 lb/ft 10.8	TUBULAR STEEL Ø (in) 5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	W-SHAPE STEEL FTG. SIZE 30"	W-SHAPE STEEL WEIGHT	W-SHAPE STEEL POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
ESSEX (CONT.)																																				
66+26, RT	Weed Rd / STOP / 1280 0406 0125 B-B	1	36	12	3.00						1					X		X																	D3-1		67	
		1	30	30	6.25																														RI-1	X		
		1	6	10	0.42																														VD-700			E-138
66+29, RT	Browns River Rd	1	60	12	5.00						2					X		X																	D3-1		67	
66+75, RT	NORTH / VERMONT 128	1	24	12	2.00						1					X		X																	M3-1 GREEN ON WHITE			E-136B
		1	30	24	5.00																														MI-5			E-136B
69+00, RT	SPEED LIMIT 50	1	24	30	5.00						1					X		X																	R2-1	X		
73+92, LT	1280 0406 0140	1	6	10	0.42						1				X			X																	VD-700			E-138
74+61, LT	25 M.P.H.	1	36	36	9.00						2					X		X																	WI-1R SALVAGE EXISTING BEACON AND MOUNT ABOVE NEW SIGN. BEACON WORK PAID AS ITEM 900.620 SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)		67	
		1	18	18	2.25																													WI3-IP	X		
84+48, RT	1280 0406 0160	1	6	10	0.42						1				X			X																	VD-700			E-138
95+54, LT	1280 0406 0180	1	6	10	0.42						1				X			X																	VD-700			E-138
103+50, RT	HIDDEN DRIVE RIGHT	1	30	30	6.25						1					X		X																	VW-054			E-154
105+10, RT	1280 0406 0200	1	6	10	0.42						1				X			X																	VD-700			E-138
TOTALS					SF 45.85	SF	EA.	SF				FT	FT	FT	FT 44	FT 121	FT 165		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB						

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #9

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss09.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 59 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 10

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
ESSEX (CONT.)																																				
107+50, RT	Osgood Hill Rd	1 1	36 42	36 10	9.00 2.92						2					X		X															WI-10L WI6-8p	X	 68	
108+90, RT	BRIDGE 4 VT 128	1	6	8	0.33						1				X			X															VD-701			E-134
109+30, LT	BRIDGE 4 VT 128	1	6	8	0.33						1				X			X															VD-701			E-134
110+42, RT	Osgood Hill Rd	1	48	12	4.00						2					X		X															D3-1		67	
110+85, RT	YIELD	1	36x36x36		3.90						1					X		X															RI-2	X		
110+89, RT	DO NOT ENTER / ONE WAY / ONE WAY B-B	1 2	30 36	30 12	6.25 6.00						1					X		X															R5-1 R6-1 MOUNT BACK-TO-BACK BELOW AND PERPENDICULAR TO THE R5-1 SIGN	X		
110+93, RT	DO NOT ENTER / ONE WAY	1 1	30 36	30 12	6.25 3.00						1					X		X															R5-1 R6-1 MOUNT BELOW AND PERPENDICULAR TO THE R5-1 SIGN FACING OSGOOD HILL ROAD	X		
110+95, RT	STOP	1	30	30	6.25						1					X		X															RI-1	X		
111+19, RT	LEGAL LOAD LIMIT 24,000 POUNDS	1	24	30	5.00						1					X		X															VR-017			E-141
"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."		**TOTALS**	SF 53.23	SF	EA. 1	SF						FT	FT	FT	FT 22	FT 145	FT 167		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB						

TRAFFIC SIGN SUMMARY SHEET #10

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss10.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 60 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 11

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	NEW & SALVAGED SIGNS: EA	SIGN DIMENSIONS: WIDTH (in)	SIGN DIMENSIONS: HEIGHT (in)	NEW & SALVAGED SIGNS: "A"	NEW & SALVAGED SIGNS: "B"	NEW & SALVAGED SIGNS: SALV SIGN	NEW & SALVAGED SIGNS: SALV TIS	EXIST POST: RETAIN	EXIST POST: SALVAGE	NEW SIGN POSTS: NO. OF POSTS	FLANGED CHANNEL lb/ft: 1.12	FLANGED CHANNEL lb/ft: 2.0	FLANGED CHANNEL lb/ft: 3.0	SQUARE STEEL (in) lb/ft: 1.75 / 1.88	SQUARE STEEL (in) lb/ft: 2.0 / 2.42	SQUARE STEEL (in) lb/ft: 2.5 / 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft: 3.0 / 1.3	TUBULAR ALUMINUM Ø (in) lb/ft: 4.0 / 1.7	TUBULAR ALUMINUM Ø (in) lb/ft: 4.0 MOD / 1.7	TUBULAR STEEL Ø (in) FOUNDATION	TUBULAR STEEL Ø (in) lb/ft: 3.0 / 7.6	TUBULAR STEEL Ø (in) lb/ft: 3.5 / 9.0	TUBULAR STEEL Ø (in) lb/ft: 4.0 / 10.8	TUBULAR STEEL Ø (in) lb/ft: 5.0 / 14.6	W-SHAPE STEEL FTG. SIZE: 24"	W-SHAPE STEEL FTG. SIZE: 30"	W-SHAPE STEEL: WEIGHT	W-SHAPE STEEL: POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL: DETAIL IN SHSM BOOK	SIGN DETAIL: DETAIL ON SHEET NUMBER	SIGN DETAIL: STD. SHEET NUMBER
ESSEX (CONT.)																																						
111+32, RT	Browns River Rd / STOP / 1280 0406 0211 B-B	1	60	12	5.00						2					X		X																D3-1		67	
		1	30	30	6.25																												RI-1	X		
		1	6	10	0.42																												VD-700			E-138
114+00, LT	Osgood Hill Rd	1	36	36	9.00						2					X		X															W1-2R		67	
		1	42	10	2.92																												W16-8p		68	
116+16, LT	1280 0406 0220	1	6	10	0.42						1				X			X															VD-700			E-138
126+72, RT	1280 0406 0240	1	6	10	0.42						1				X			X															VD-700			E-138
137+50, LT	HIDDEN DRIVES / 1280 0406 0260	1	30	30	6.25						1					X		X															VW-060			E-154
		1	6	10	0.42																												VD-700			E-138
142+90, LT		1	36	36	9.00						2					X		X															S3-1 (FLUORESCENT YELLOW-GREEN)	X		
"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."																																					
TOTALS		SF 40.10	SF	EA.	SF				FT	FT	FT	FT 22	FT 116	FT		EA	LB	LB	LB		EA.	LB	LB	LB	LB	EA.	EA.	LB								
															FT 138					LB																

TRAFFIC SIGN SUMMARY SHEET #11

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss11.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 61 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 12

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	SIGN DIMENSIONS WIDTH (In)	SIGN DIMENSIONS HEIGHT (In)	NEW & SALVAGED SIGNS "A"	NEW & SALVAGED SIGNS "B"	NEW & SALVAGED SIGNS SALV SIGN	NEW & SALVAGED SIGNS SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	FLANGED CHANNEL lb/ft 2.0	FLANGED CHANNEL lb/ft 3.0	SQUARE STEEL (In) 1.75 lb/ft 1.88	SQUARE STEEL (In) 2.0 lb/ft 2.42	SQUARE STEEL (In) 2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (In) 3.0 lb/ft 1.3	TUBULAR ALUMINUM Ø (In) 4.0 lb/ft 1.7	TUBULAR ALUMINUM Ø (In) 4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (In) FOUNDATION	TUBULAR STEEL Ø (In) 3.0 lb/ft 7.6	TUBULAR STEEL Ø (In) 3.5 lb/ft 9.0	TUBULAR STEEL Ø (In) 4.0 lb/ft 10.8	TUBULAR STEEL Ø (In) 5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	W-SHAPE STEEL FTG. SIZE 30"	W-SHAPE STEEL WEIGHT	W-SHAPE STEEL POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
ESSEX (CONT.)																																					
148+10, LT	1280 0406 0280	1	6	10	0.42						1				X			X																	VD-700			E-138
158+40, LT	1280 0406 0300	1	6	10	0.42						1				X			X																	VD-700			E-138
168+96, RT	1280 0406 0320	1	6	10	0.42						1				X			X																	VD-700			E-138
171+53, LT	SPEED LIMIT 50	1	24	30	5.00						1					X		X																	R2-1	X		
179+52, LT	1280 0406 0340	1	6	10	0.42						1				X			X																	VD-700			E-138
184+00, RT		1	30	30	6.25						1					X		X																	W1-2R	X		
190+08, RT	1280 0406 0360	1	6	10	0.42						1				X			X																	VD-700			E-138
192+00, LT		1	30	30	6.25						1					X		X																	W1-2L	X		
200+64, LT	1280 0406 0380	1	6	10	0.42						1				X			X																	VD-700			E-138
206+55, LT	Browns River Rd	1	60	12	5.00						2					X		X																	D3-1		67	
206+70, LT	Pettingill Rd STOP 1280 0406 0391 B-B	1 1 1	42 30 6	12 30 10	3.50 6.25 0.42						1					X		X																	D3-1 R1-1 VD-700	X	67	E-138
TOTALS			SF 35.19	SF	EA.	SF						FT	FT	FT	FT 66	FT 92	FT 158		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB							

"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #12

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss12.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 62 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 13

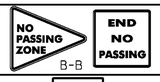
MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	NEW & SALVAGED SIGNS: EA	SIGN DIMENSIONS: WIDTH (In)	SIGN DIMENSIONS: HEIGHT (In)	NEW & SALVAGED SIGNS: "A"	NEW & SALVAGED SIGNS: "B"	NEW & SALVAGED SIGNS: SALV SIGN	NEW & SALVAGED SIGNS: SALV TIS	EXIST POST: RETAIN	EXIST POST: SALVAGE	NEW SIGN POSTS: NO. OF POSTS	FLANGED CHANNEL lb/ft: 1.12	FLANGED CHANNEL lb/ft: 2.0	FLANGED CHANNEL lb/ft: 3.0	SQUARE STEEL (In) lb/ft: 1.75 (1.88)	SQUARE STEEL (In) lb/ft: 2.0 (2.42)	SQUARE STEEL (In) lb/ft: 2.5 (3.35)	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (In) lb/ft: 3.0 (1.3)	TUBULAR ALUMINUM Ø (In) lb/ft: 4.0 (1.7)	TUBULAR ALUMINUM Ø (In) lb/ft: 4.0 MOD (1.7)	TUBULAR STEEL FOUND-ATION	TUBULAR STEEL Ø (In) lb/ft: 3.0 (7.6)	TUBULAR STEEL Ø (In) lb/ft: 3.5 (9.0)	TUBULAR STEEL Ø (In) lb/ft: 4.0 (10.8)	TUBULAR STEEL Ø (In) lb/ft: 5.0 (14.6)	W-SHAPE STEEL FTG. SIZE: 24"	W-SHAPE STEEL FTG. SIZE: 30"	W-SHAPE STEEL: WEIGHT	W-SHAPE STEEL: POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL: DETAIL IN SHSM BOOK	SIGN DETAIL: DETAIL ON SHEET NUMBER	SIGN DETAIL: STD. SHEET NUMBER
ESSEX (CONT.)																																				
207+18, LT	SPEED LIMIT 30	1	24	30	5.00						1						X	X															R2-1	X		
	LEGAL LOAD LIMIT 24,000 POUNDS	1	24	30	5.00																												VR-017			E-141
207+36, LT	ONE LANE BRIDGE	1	36	36	9.00						2					X		X															W5-3	X		
211+20, RT	1280 0406 0400	1	6	10	0.42						1				X			X															VD-700			E-138
221+76, RT	1280 0406 0420	1	6	10	0.42						1				X			X															VD-700			E-138
232+37, RT	Westford 1280 0416 0000 / Essex 1280 0406 0440	1	72	12	6.00						2					X		X															VD-024		68	
		1	6	10	0.42																												VD-700			E-138
		1	6	10	0.42																												VD-700			E-138
WESTFORD																																				
10+56, LT	1280 0416 0020	1	6	10	0.42						1				X			X															VD-700			E-138
21+13, RT	1280 0416 0040	1	6	10	0.42						1				X			X															VD-700			E-138
"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."		**TOTALS**	SF 27.52	SF	EA.	SF						FT	FT	FT	FT 44	FT 60	FT 16		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB					

TRAFFIC SIGN SUMMARY SHEET #13

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)
FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss13.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 63 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 14

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
WESTFORD (CONT.)																																				
22+65, LT		1	36	36	9.00						2					X		X																S3-1 (FLUORESCENT YELLOW-GREEN)	X		
31+68, RT		1	6	10	0.42						1				X			X																VD-700			E-138
34+20, RT							1				1					X		X																MOUNT SALVAGED SIGN ON NEW POST			
35+50, LT		1	30	30	6.25						1					X		X																W11-5	X		
42+24, LT		1	6	10	0.42						1				X			X																VD-700			E-138
52+50, LT		1	24	30	5.00						1					X		X																R2-1	X		
52+80, RT		1 1	24 6	30 10	5.00 0.42						1					X		X																R2-1 VD-700	X		 E-138
54+91, LT		1 1	30 48x48x36	30	6.25 5.56						2					X		X																VR-417 W14-3	 X		E-141
54+91, RT		1	24	30	5.00						1					X		X																R4-1	X		
58+71, LT		1	36	36	9.00						2					X		X																S3-1 (FLUORESCENT YELLOW-GREEN)	X		
59+71, LT		1	30	30	6.25						1					X		X																VW-054			E-154
												FT	FT	FT	FT 22	FT 182	FT		EA	LB	LB	LB		LB	LB	LB	LB								
"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."		**TOTALS**			SF 58.57	SF	EA. 1	SF				FT			FT 204					LB			EA.	LB				EA.	EA.	LB						

TRAFFIC SIGN SUMMARY SHEET #14

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss14.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 64 OF 239

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 15

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	SIGN DIMENSIONS WIDTH (in)	SIGN DIMENSIONS HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL IN SHSM BOOK	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
WESTFORD (CONT.)																																					
60+52, LT	DO NOT PASS	1	24	30	5.00						1					X		X																R4-1 SALVAGE EXISTING BEACONS AND MOUNT ABOVE NEW SIGN. BEACON WORK PAID AS ITEM 900.620 SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)	X		
63+36, LT	1280 0416 0120	1	6	10	0.42						1				X			X															VD-700			E-138
66+17, LT	DO NOT PASS	1	24	30	5.00						1					X		X															R4-1	X		
66+17, RT	DO NOT PASS	1	24	30	5.00						1					X		X															R4-1	X		
	SHEET TOTAL				15.42										11	45																				
	SHEET 51 SUBTOTALS				101.02											61	64						2	190												
	SHEET 52 SUBTOTALS				57.60										22	165																				
	SHEET 53 SUBTOTALS				45.76										11	105	16																			
	SHEET 54 SUBTOTALS				63.75											150	16																			
	SHEET 55 SUBTOTALS				54.84										11	120	16																			
	SHEET 56 SUBTOTALS				55.67											151																				
	SHEET 57 SUBTOTALS				26.16										56	112																				
	SHEET 58 SUBTOTALS				83.92											256																				
	SHEET 59 SUBTOTALS				45.85										44	121																				
	SHEET 60 SUBTOTALS				53.23										22	145																				
	SHEET 61 SUBTOTALS				40.10										22	116																				
	SHEET 62 SUBTOTALS				35.19										66	92																				
	SHEET 63 SUBTOTALS				27.52										44	60	16																			
	SHEET 64 SUBTOTALS				58.57		1								22	182																				
	SHEET 65 SUBTOTALS				15.42										11	45																				
	PROJECT SUBTOTALS				764.60		1								331	1881	128						2	190												
	ROUNDING				5.40		-								4	19	2						-	10												
												FT	FT	FT	FT 335	FT 1900	FT 130		EA	LB	LB	LB		LB 200	LB	LB	LB								
	TOTALS				SF 770	SF	EA. 1	SF				FT			FT 2365					LB			EA. 2	LB 200				EA.	EA.	LB					

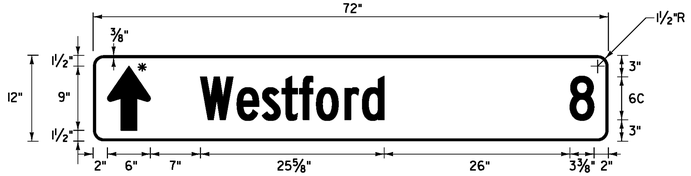
"SHSM"-STANDARD HIGHWAY SIGNS AND MARKINGS

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

TRAFFIC SIGN SUMMARY SHEET #15

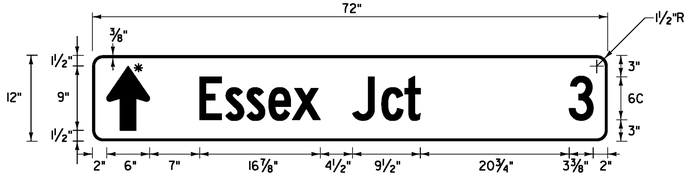
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tss15.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 65 OF 239



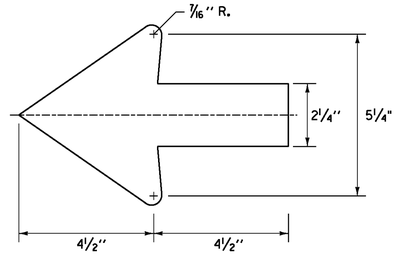
VD1-1a

LOCATION: ESSEX STA. 1+00, RT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET

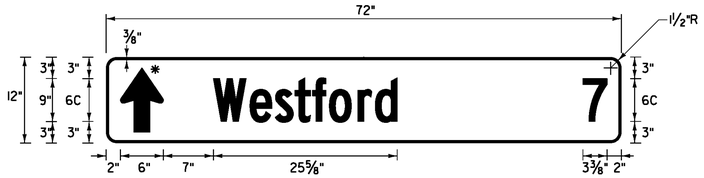


VD1-1a

LOCATION: ESSEX STA. 3+00, LT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET

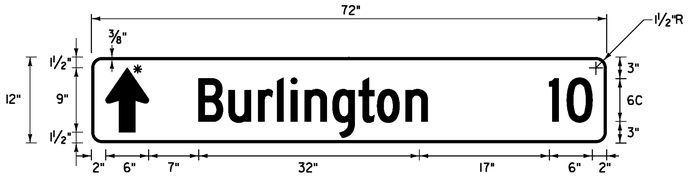


STANDARD SHSM 2.25" ARROW



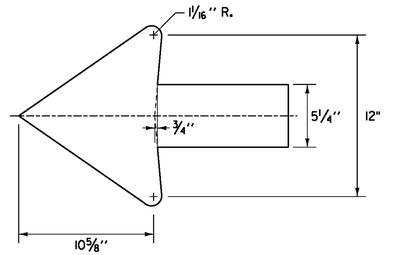
VD1-1a

LOCATION: ESSEX STA. 63+50, RT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET

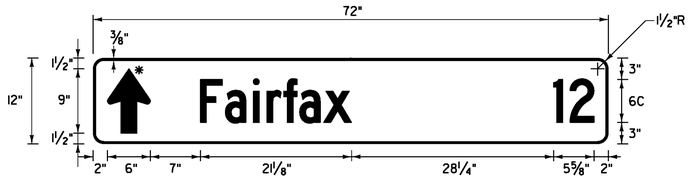


VD1-1a

LOCATION: ESSEX STA. 3+00, LT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET

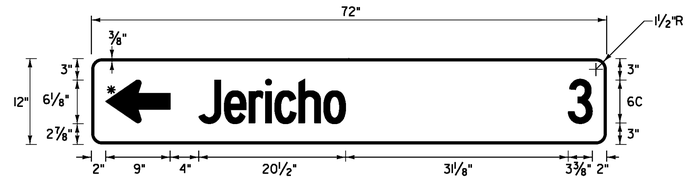


STANDARD SHSM 5.25" ARROW



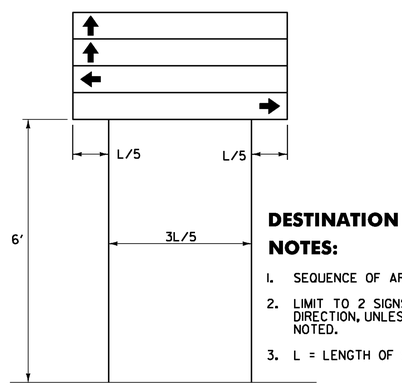
VD1-1a

LOCATION: ESSEX STA. 1+00, RT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET



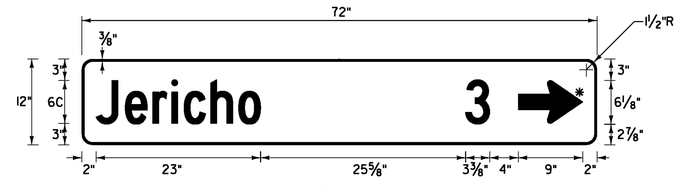
VD1-1a

LOCATION: ESSEX STA. 3+00, LT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET



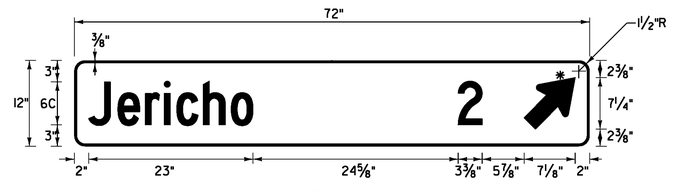
DESTINATION ASSEMBLY NOTES:

1. SEQUENCE OF ARROWS AS SHOWN.
2. LIMIT TO 2 SIGNS IN EACH DIRECTION, UNLESS OTHERWISE NOTED.
3. L = LENGTH OF SIGN



VD1-1a

LOCATION: ESSEX STA. 1+00, RT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET



VD1-1a

LOCATION: ESSEX STA. 63+50, RT
COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)
MATERIAL: 0.125" FLAT SHEET ALUMINUM
* FOR ARROW DETAIL SEE THIS SHEET

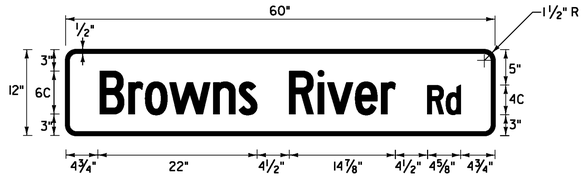
NOT TO SCALE

Stantec

TRAFFIC SIGN DETAIL SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tsd01.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 66 OF 239

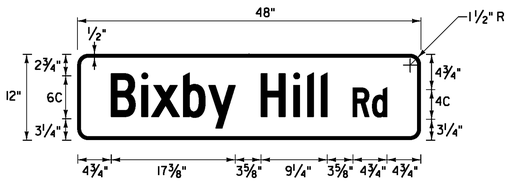


D3-1

LOCATION: ESSEX
STA. 5+55, LT
STA. 5+90, RT
STA. 33+16, LT
STA. 37+90, RT
STA. 66+29, RT
STA. 111+32, RT
STA. 206+55, LT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

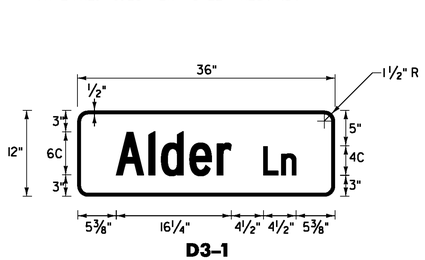


D3-1

LOCATION: ESSEX STA. 5+40, LT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

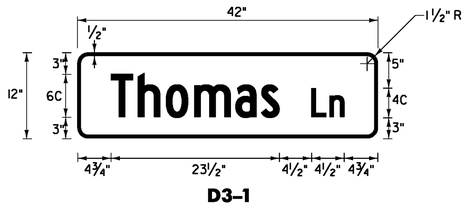


D3-1

LOCATION: ESSEX STA. 5+84, RT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

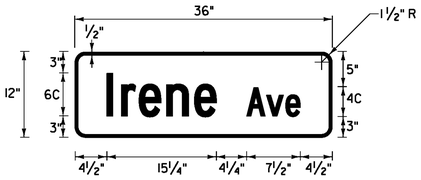


D3-1

LOCATION: ESSEX STA. 33+26, LT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

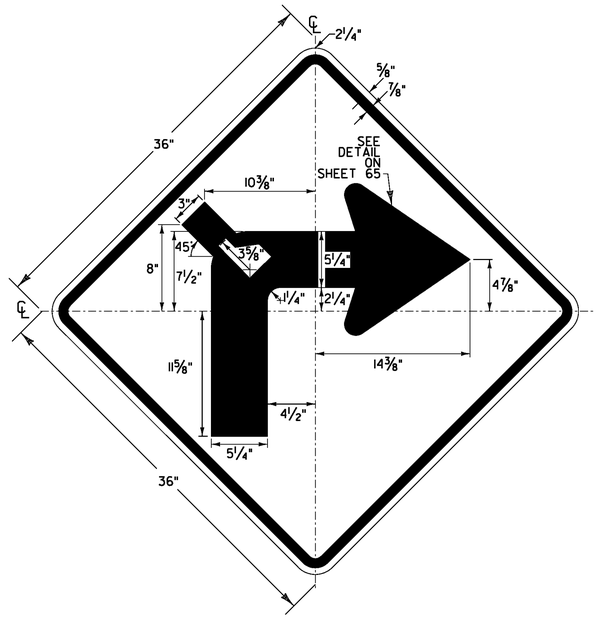


D3-1

LOCATION: ESSEX STA. 37+77, RT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

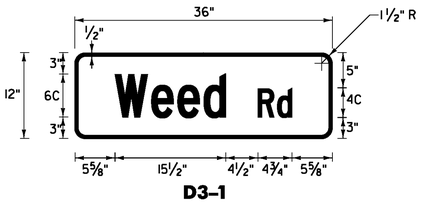


W1-1R VARIATION

LOCATION: ESSEX STA. 60+10, LT&RT (MIRROR W1-1L)
ESSEX STA. 74+61, LT

COLOR: BLACK BORDER & SYMBOL
WITH YELLOW (RETROREFLECTIVE) BACKGROUND

MATERIAL: PER THE TABLE ON SHEET 68



D3-1

LOCATION: ESSEX STA. 66+26, RT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

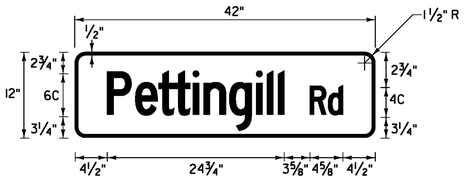


D3-1

LOCATION: ESSEX STA. 110+42, RT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

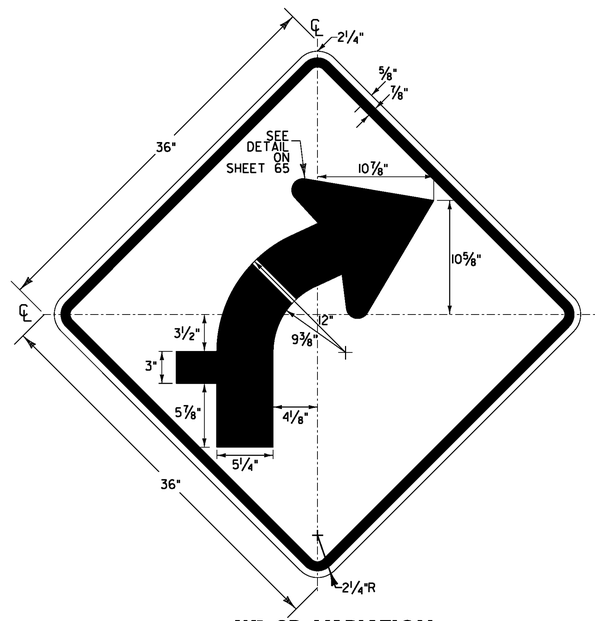


D3-1

LOCATION: ESSEX STA. 206+70, LT

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM



W1-2R VARIATION

LOCATION: ESSEX STA. 114+00, LT

COLOR: BLACK BORDER & SYMBOL
WITH YELLOW (RETROREFLECTIVE) BACKGROUND

MATERIAL: PER THE TABLE ON SHEET 68

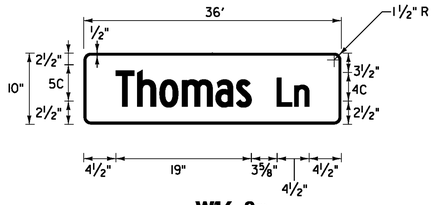
NOT TO SCALE

Stantec

TRAFFIC SIGN DETAIL SHEET #2

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tsd02.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 67 OF 239



W16-8p

LOCATION: ESSEX STA. 29+25, RT

COLOR: BLACK BORDER AND TEXT
YELLOW BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM



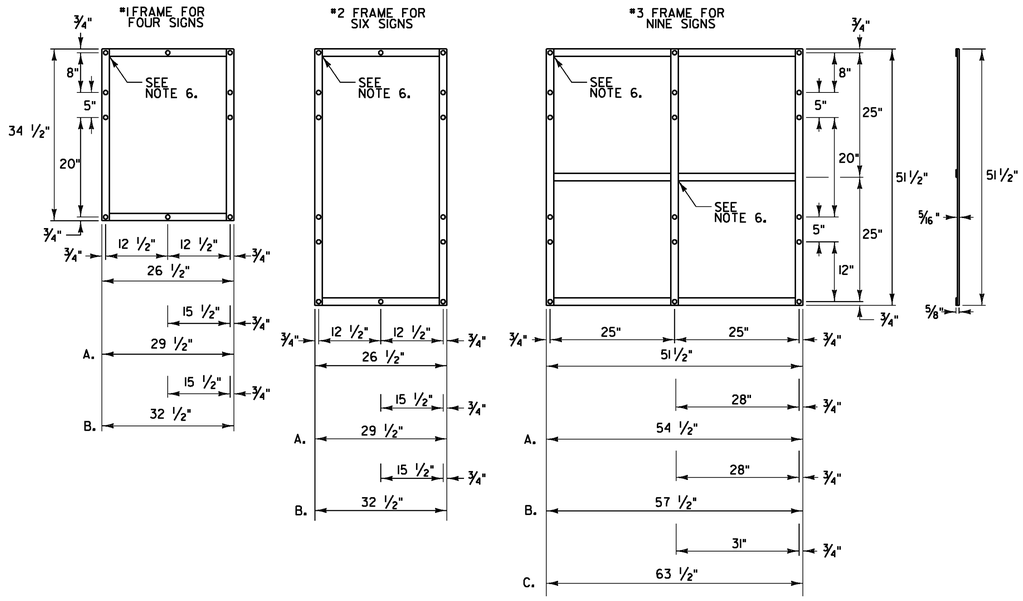
W16-8p

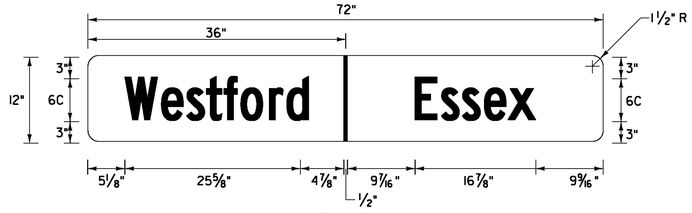
LOCATION: ESSEX STA. 107+50, RT
ESSEX STA. 114+00, LT

COLOR: BLACK BORDER AND TEXT
YELLOW BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.125" FLAT SHEET ALUMINUM

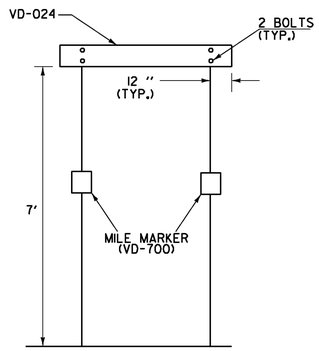
ROUTE MARKER ASSEMBLY FRAMES

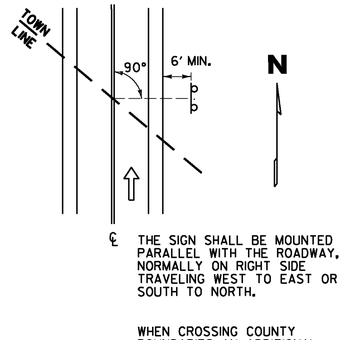




VD-024

LOCATION: ESSEX STA. 232+37, RT.





℄ THE SIGN SHALL BE MOUNTED PARALLEL WITH THE ROADWAY, NORMALLY ON RIGHT SIDE TRAVELING WEST TO EAST OR SOUTH TO NORTH.

WHEN CROSSING COUNTY BOUNDARIES AN ADDITIONAL COUNTY LINE SIGN (VD-025) SHALL BE MOUNTED BELOW THE TOWN LINE SIGN (VD-024) MAINTAINING A SEVEN FOOT CLEARANCE.

TRAFFIC SIGN NOTES

1. ALL SIGN LETTERING, DIGITS, ARROWS, AND DESIGN OF SYMBOLS FOR SIGNS REFERENCED IN THESE PLANS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AS ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) UNLESS OTHERWISE DETAILED WITHIN THESE PLANS.
2. ALL COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) AND APPROVED BY FHWA UNLESS OTHERWISE NOTED.
3. ALL SHEETING SHALL BE TYPE III MINIMUM PER SUBSECTION 750.08 RETROREFLECTIVE SHEETING.
4. ALL STREET NAME SIGNS ARE TWO-SIDED UNLESS NOTED OTHERWISE.
5. UNLESS OTHERWISE DETAILED ON THE PLANS, ALL SIGN BASE MATERIALS SHALL BE FLAT SHEET ALUMINUM WITH THE FOLLOWING MINIMUM THICKNESSES:

SIZES			36" X 12"	
		24" X 10"	36" X 15"	
		24" X 12"	42" X 12"	
		30" X 12"	48" X 12"	
		24" X 18"	36" X 18"	60" X 12"
		24" X 24"	54" X 12"	48" X 18"
		24" X 30"	36" X 24"	48" X 24"
	9" X 12"	30" X 15"	30" X 42"	48" X 30"
	12" X 12"	30" X 18"	36" X 36"	48" X 42"
	18" X 18"	30" X 30"	36" X 48"	48" X 48"
	21" X 15"	30" X 42"	36" X 54"	48" X 60"
THICKNESS	0.060"	0.080"	0.100"	0.125"

NOTES:

1. NOTES FOR *1 AND *2 FRAME:
   - A. WITH ONE 30 INCH THREE DIGIT SIGN
   - B. WITH TWO 30 INCH THREE DIGIT SIGNS
2. NOTES FOR *3 FRAME:
   - A. WITH ONE 30 INCH THREE DIGIT SIGN IN AN OUTSIDE POSITION.
   - B. WITH ONE 30 INCH THREE DIGIT SIGN IN THE CENTER POSITION OR TWO SUCH SIGNS IN THE OUTSIDE POSITIONS.
   - C. WITH THREE 30 INCH THREE DIGIT SIGNS.
3. ALL HOLES SHALL BE 7/16" DIAMETER. FOR OTHER SIGN COMBINATIONS THAN ABOVE, THE FRAME DIMENSIONS AND HOLE SPACING SHALL BE MODIFIED AS NECESSARY. THE FRAME SHALL BE PAINTED WITH ONE COAT OF PRIMER AND A SECOND COAT OF BLACK PAINT. THE PAINT SHALL BE OF THE TYPE USED ON EXTERIOR METAL SURFACES TO PREVENT METAL CORROSION.
4. ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED.
5. FRAMES SHALL BE CONSTRUCTED OF 5/16" × 1½" A-36 STEEL.
6. ALL OVERLAPPED CONNECTIONS SHALL BE WELDED WITH TWO ¼" WIDE FILLET WELDS, 1½" LONG.

TOWN LINE SIGN NOTES:

1. WORD TO WORD SPACING FOR MULTIPLE TEXT TOWN NAMES IS ADJUSTABLE TO ACCOMMODATE DIMENSION REQUIREMENTS.
2. DIMENSIONS SHOWN ARE APPROXIMATE AND MAY BE ADJUSTED SLIGHTLY TO ACCOMMODATE VARIOUS MANUFACTURER'S LETTER WIDTHS.
3. ALL DIMENSIONS ARE IN INCHES EXCEPT WHERE NOTED.
4. THE SIGN BASE MATERIAL SHALL BE FLAT SHEET ALUMINUM 0.125" MINIMUM THICKNESS. THE RETROREFLECTIVE MATERIAL SHALL BE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE LEGEND SHALL BE CUT-OUT RETROREFLECTIVE LEGEND. ALL RETROREFLECTIVE MATERIAL SHALL BE EQUAL TO OR EXCEEDING THE "THE AMERICAN SOCIETY OF TESTING AND MATERIALS" (ASTM D 4956) TYPE III.
5. SIGNS SHALL HAVE A RETROREFLECTIVE WHITE LEGEND ON A RETROREFLECTIVE GREEN BACKGROUND.
6. LEGEND SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

NOT TO SCALE

Stantec

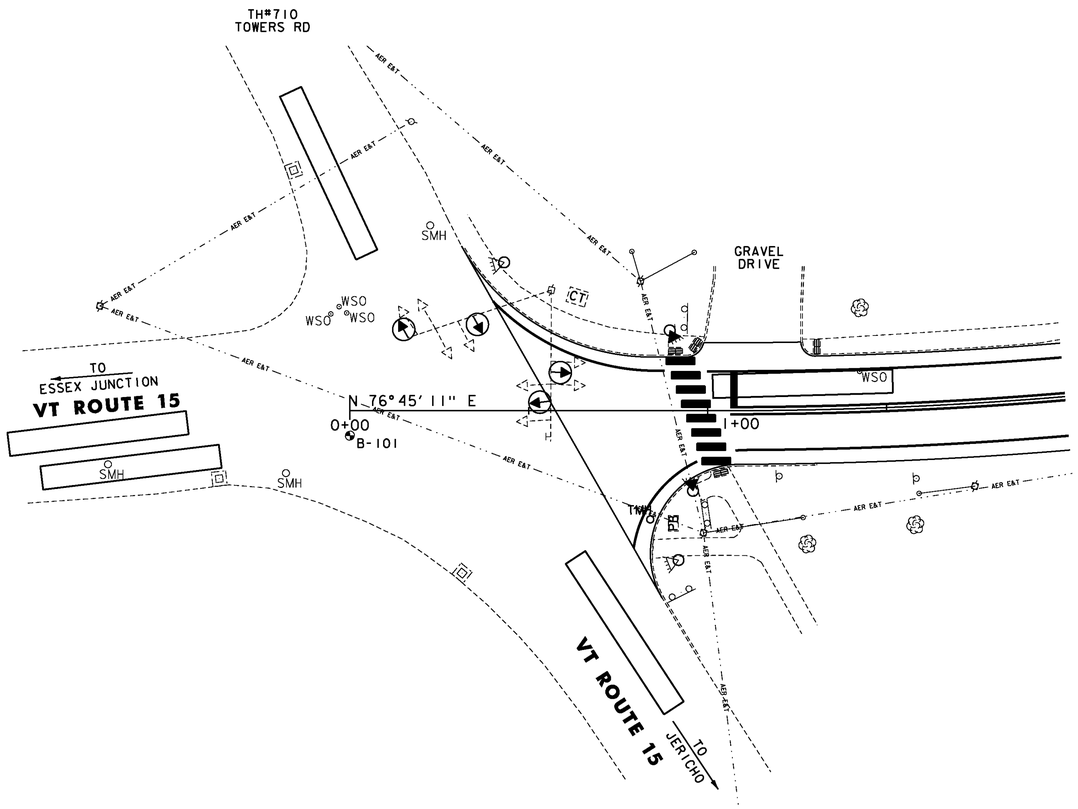
TRAFFIC SIGN DETAIL SHEET #3

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tsd03.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 68 OF 239

VT ROUTE 128 /VT ROUTE 15 INTERSECTION



ITEM 678.15 TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION ESSEX STA. 0+58		
QUANTITY	UNIT	DESCRIPTION
4	EA	VIDEO DETECTOR CAMERA ASSEMBLY
250	LF	VIDEO DETECTOR CABLE
4	EA	VIDEO DETECTOR CAMERA MOUNTING BRACKET
1	EA	CABINET RACK
1	EA	ADJUST HEIGHT OF CABINET RACK (AS NECESSARY)
2	EA	COUNT-DOWN PEDESTRIAN SIGNAL WITH MOUNTING HARDWARE
2	EA	ACCESSIBLE PEDESTRIAN PUSHBUTTON ASSEMBLY (SEE NOTE 3)

LEGEND	
DESCRIPTION	
----	EXISTING CONDUIT
□	EXISTING JUNCTION BOX
CT	EXISTING CONTROLLER CABINET
	EXISTING POLE
	VIDEO DETECTION AREA
	EXISTING VIDEO DETECTOR CAMERA
	PROPOSED VIDEO DETECTOR CAMERA
	EXISTING VEHICLE SIGNAL
	PROPOSED VEHICLE SIGNAL
PB	EXISTING PULL BOX
	EXISTING PEDESTRIAN SIGNAL
	PROPOSED COUNT-DOWN PEDESTRIAN SIGNAL

NOTES:

1. THIS PLAN SHEET IS NOT TO SCALE AND SHALL ONLY BE USED AS A GUIDE FOR THE PLACEMENT OF THE HARDWARE LISTED. THE CONTRACTOR SHALL CONFIRM ALL LOCATIONS IN THE FIELD WITH THE ENGINEER PRIOR TO INSTALLATION. LOCATIONS MAY BE REVISED AS A RESULT OF THE SITE SURVEY.
2. THE CONTRACTOR SHALL VERIFY IN THE FIELD THAT THERE IS ADEQUATE SPACE IN THE CONDUIT FOR VIDEO DETECTION CABLE AND EQUIPMENT. IF ADDITIONAL CONDUIT INSTALLATION IS REQUIRED, ALL WORK ASSOCIATED FOR INSTALLATION SHALL BE INCIDENTAL TO ITEM 678.15 TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION. MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH SECTION 678 OF THE 2011 EDITION OF THE VTRANS STANDARD SPECIFICATIONS FOR CONSTRUCTION.
3. FOR INFORMATION REGARDING THE INSTALLATION OF ACCESSIBLE PEDESTRIAN PUSHBUTTON ASSEMBLIES (ORIENTATION, HEIGHT, ETC.), SEE SECTION 4E.08 PEDESTRIAN DETECTORS IN THE 2009 MUTCD.

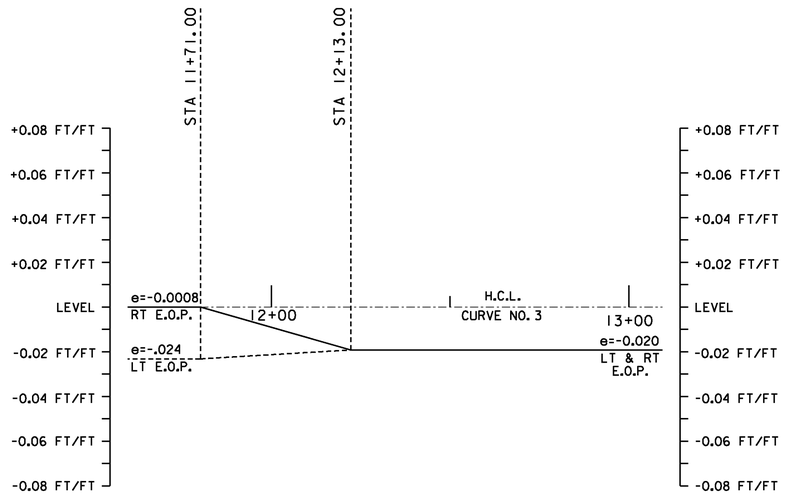
NOT TO SCALE

Stantec

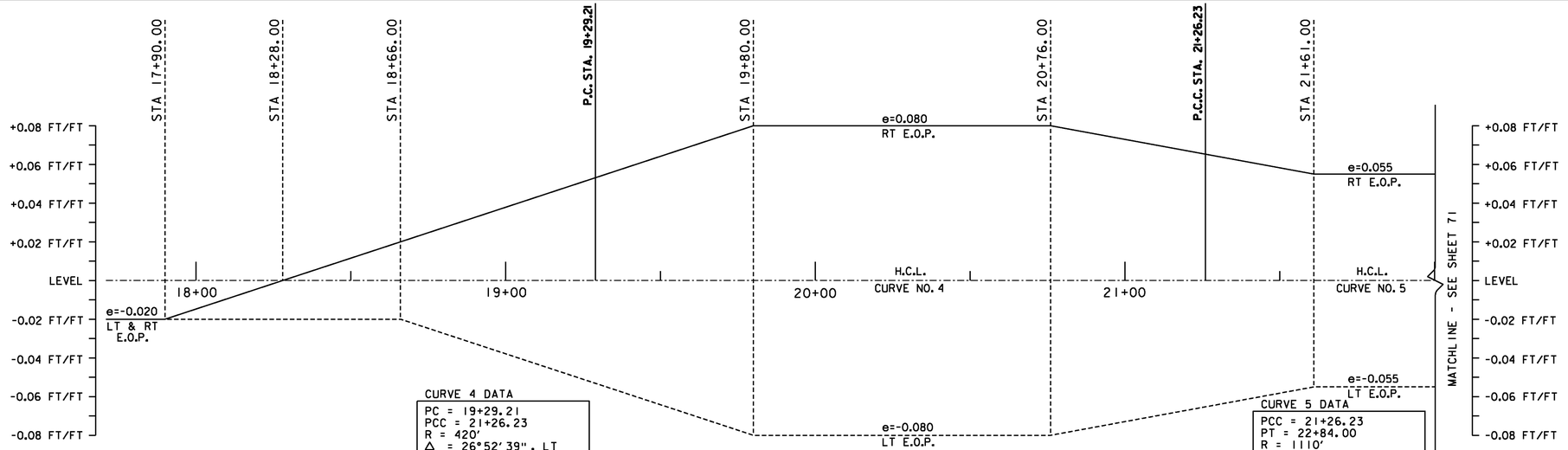
TRAFFIC CONTROL SIGNAL SYSTEM SHEET

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226tsss01.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 69 OF 239



BEGIN RECLAMATION BANKING TRANSITION DIAGRAM



CURVE 4 DATA
PC = 19+29.21
PCC = 21+26.23
R = 420'
Δ = 26°52'39", LT
D = 13°38'31"
e = 8.0
L = 197.02'

CURVE 5 DATA
PCC = 21+26.23
PT = 22+84.00
R = 1110'
Δ = 8°08'36", LT
D = 5°09'42"
e = 5.5
L = 157.76'

CURVE 4 & 5 BANKING TRANSITION DIAGRAMS

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.

2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

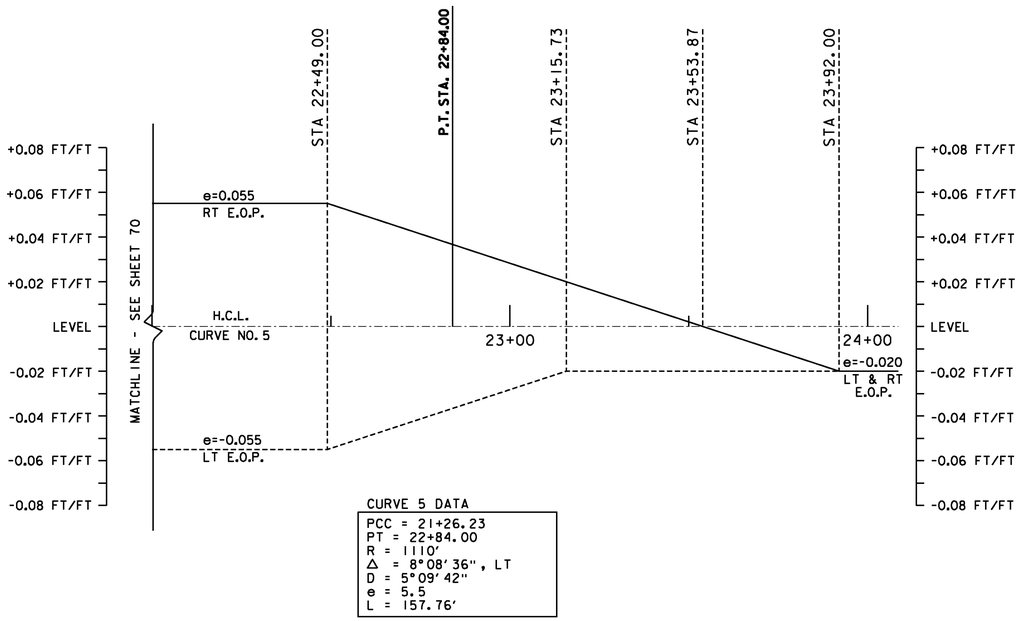
Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd01.i

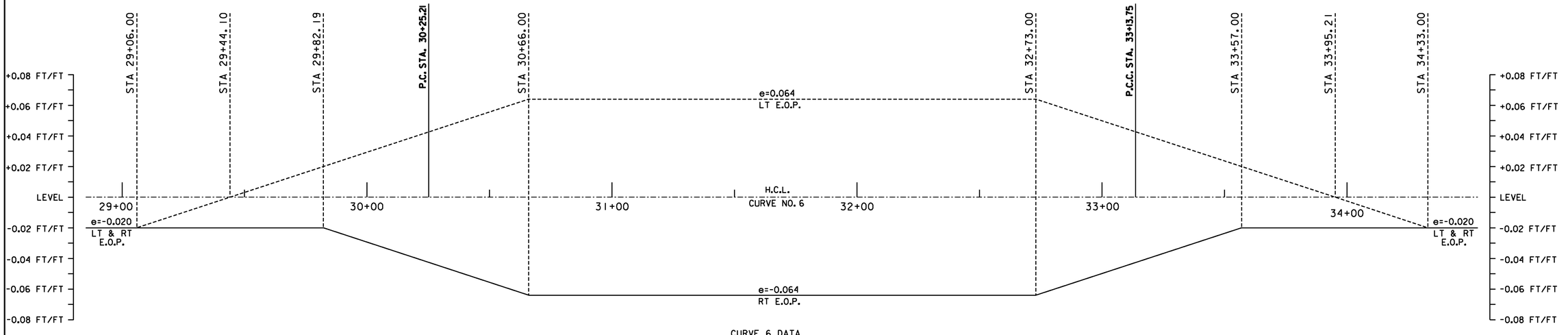
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 70 OF 239



CURVE 5 DATA

PCC = 21+26.23
PT = 22+84.00
R = 1110'
Δ = 8°08'36", LT
D = 5°09'42"
e = 5.5
L = 157.76'

CURVE 5 BANKING TRANSITION DIAGRAM



CURVE 6 DATA

PC = 30+25.21
PCC = 33+13.75
R = 850'
Δ = 19°26'57", RT
D = 6°44'26"
e = 6.4
L = 288.53'

CURVE 6 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

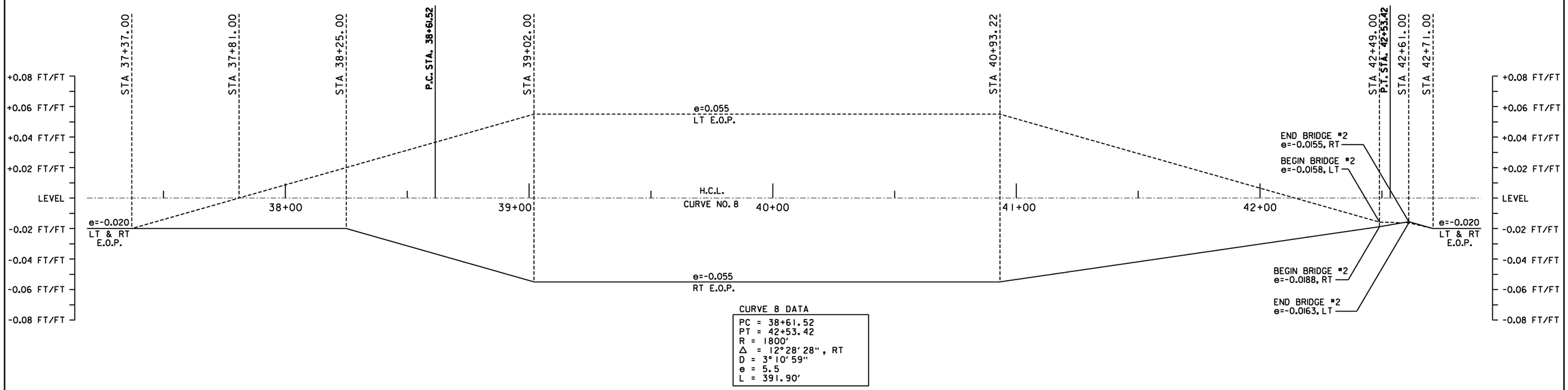
SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #2

Stantec

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd02.i

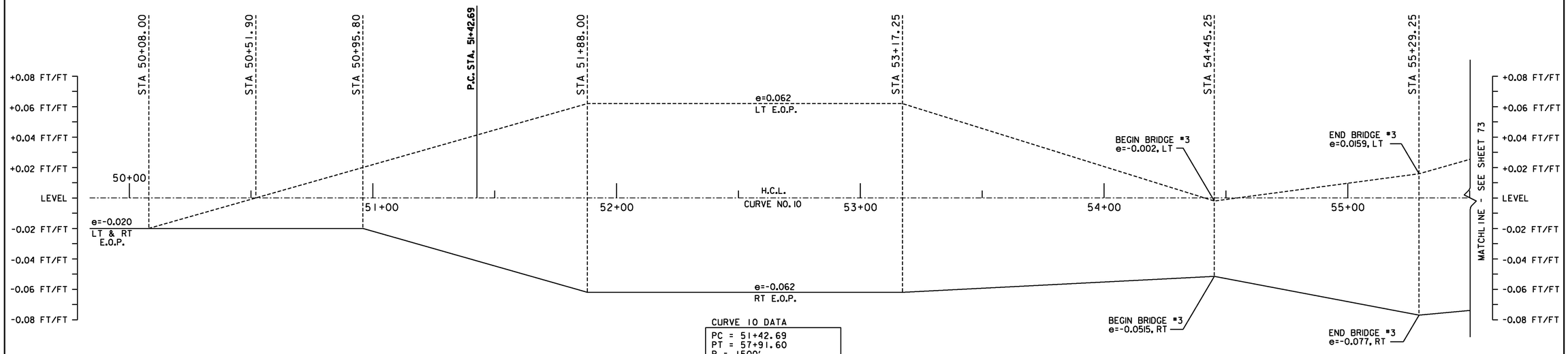
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 71 OF 239



CURVE 8 DATA

PC = 38+61.52
PT = 42+53.42
R = 1800'
Δ = 12°28'28", RT
D = 3°10'59"
e = 5.5
L = 391.90'

CURVE 8 BANKING TRANSITION DIAGRAM



CURVE 10 DATA

PC = 51+42.69
PT = 57+91.60
R = 1500'
Δ = 24°47'12", RT
D = 3°49'11"
e = 6.2
L = 648.92'

CURVE 10 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

NOTE: CURVES #7 & #9 DO NOT REQUIRE BANKING

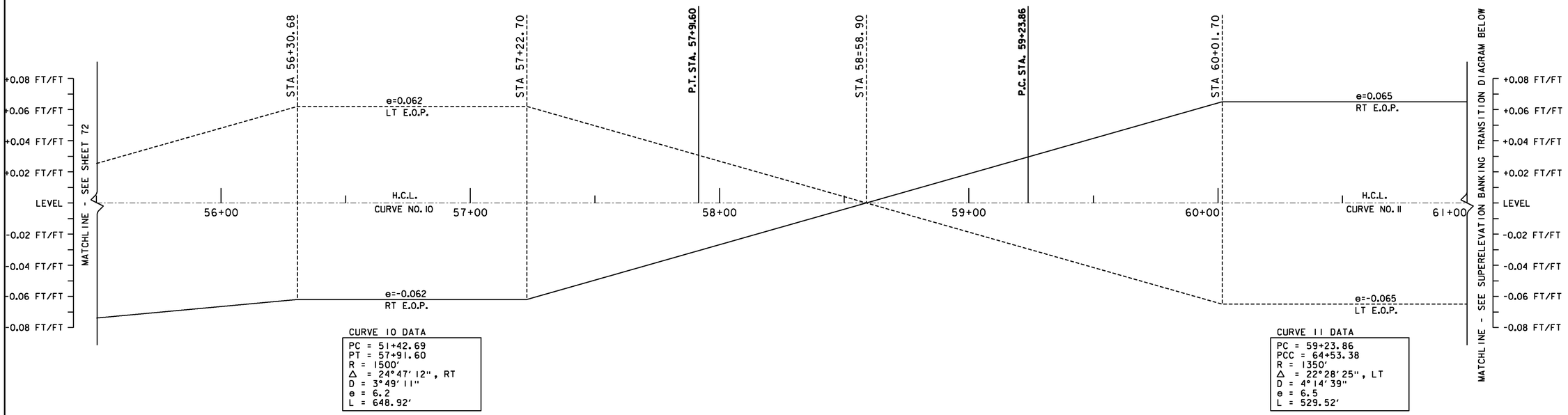
Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #3

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd03.i

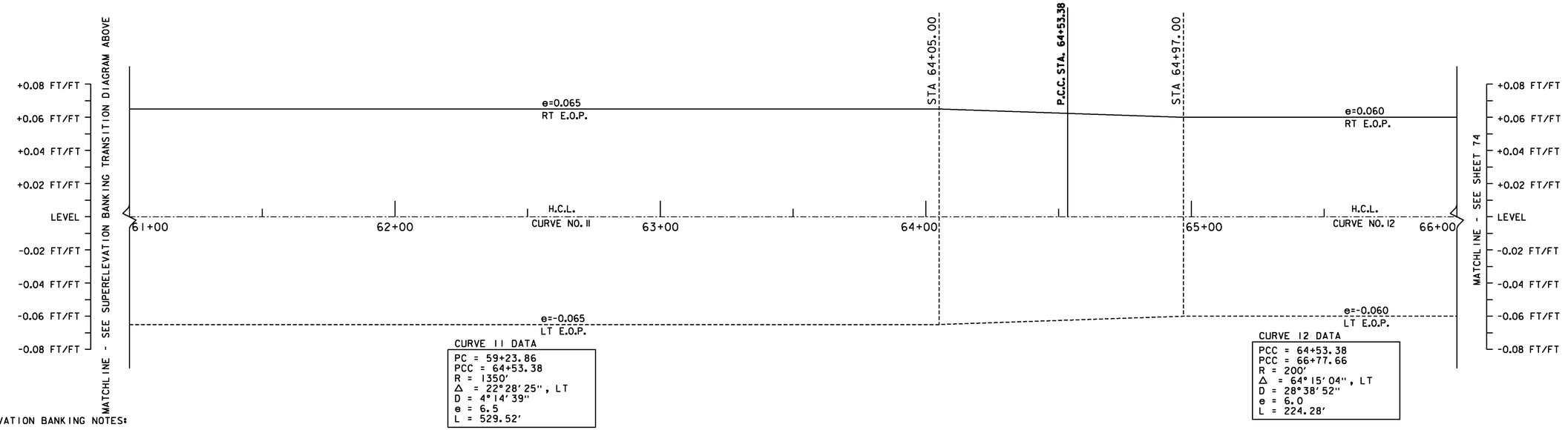
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 72 OF 239



CURVE 10 DATA
PC = 51+42.69
PT = 57+91.60
R = 1500'
Δ = 24°47'12", RT
D = 3°49'11"
e = 6.2
L = 648.92'

CURVE 11 DATA
PC = 59+23.86
PCC = 64+53.38
R = 1350'
Δ = 22°28'25", LT
D = 4°14'39"
e = 6.5
L = 529.52'

CURVE 10 & 11 BANKING TRANSITION DIAGRAMS



CURVE 11 DATA
PC = 59+23.86
PCC = 64+53.38
R = 1350'
Δ = 22°28'25", LT
D = 4°14'39"
e = 6.5
L = 529.52'

CURVE 12 DATA
PCC = 64+53.38
PCC = 66+77.66
R = 200'
Δ = 64°15'04", LT
D = 28°38'52"
e = 6.0
L = 224.28'

CURVE 11 & 12 BANKING TRANSITION DIAGRAMS

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.

2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

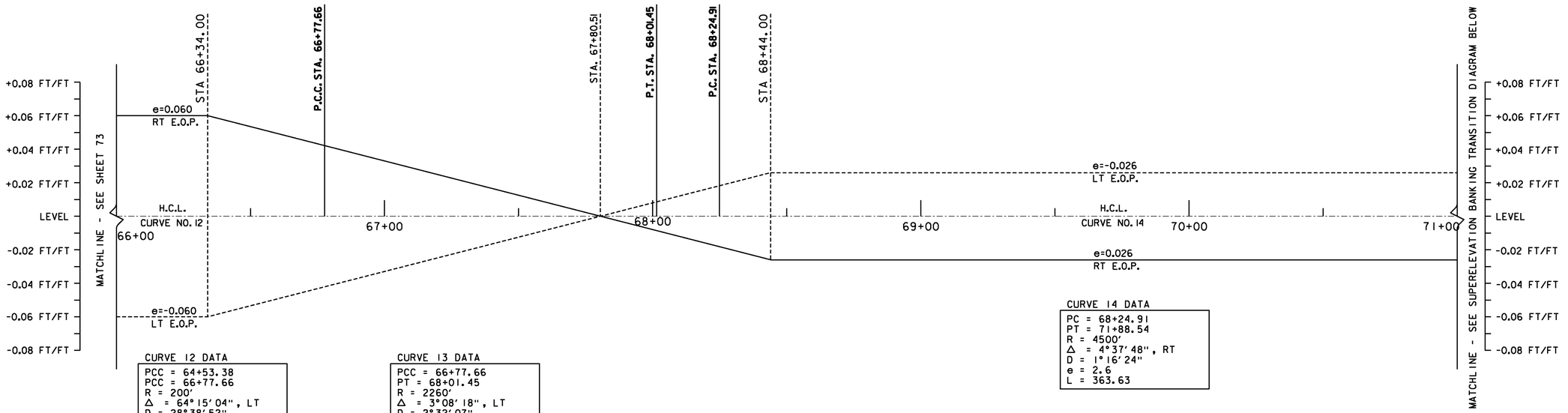
Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #4

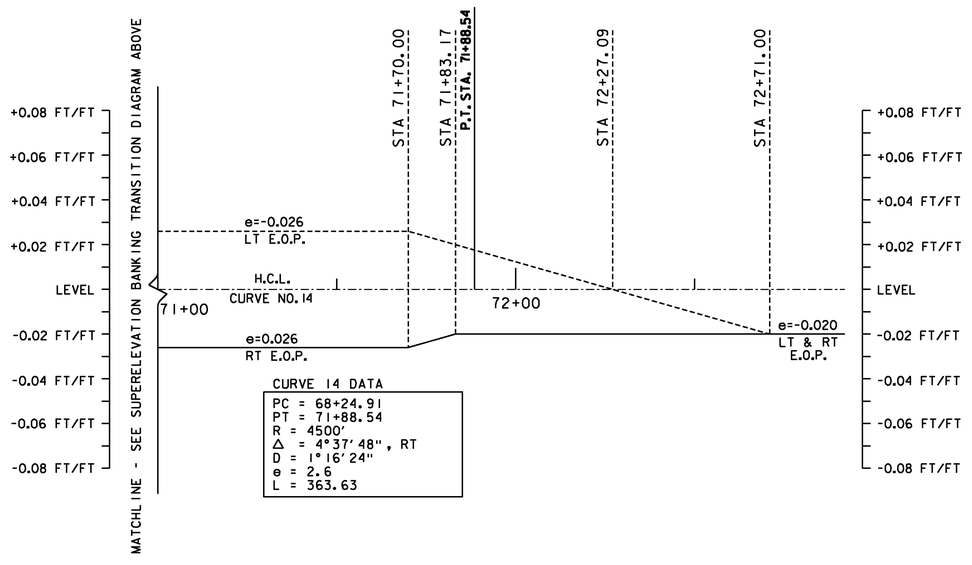
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd04.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC



CURVE 12, 13 & 14 BANKING TRANSITION DIAGRAMS



SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.

2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

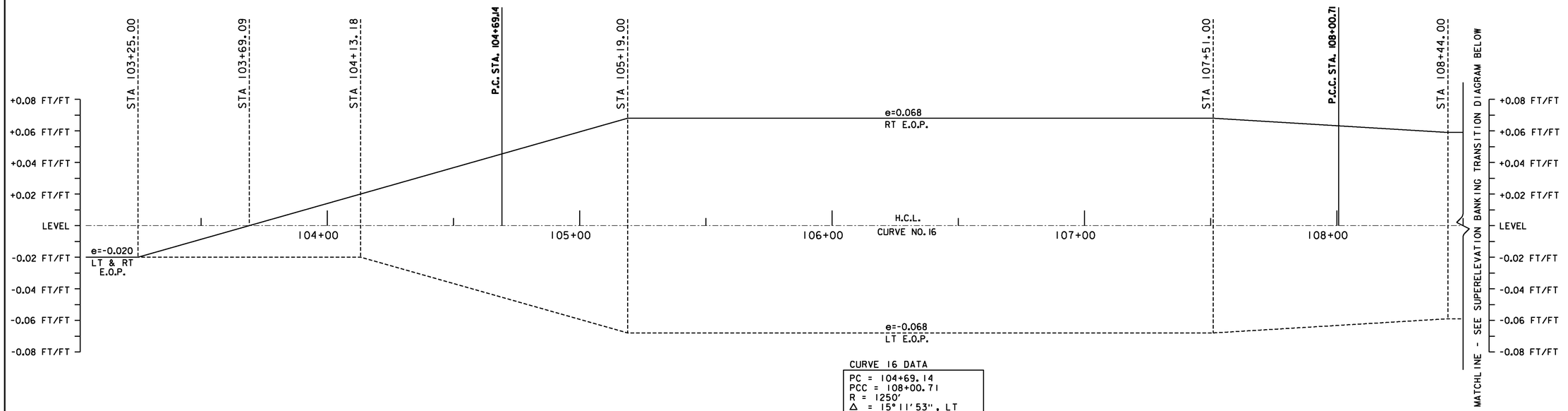
NOT TO SCALE

Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #5

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

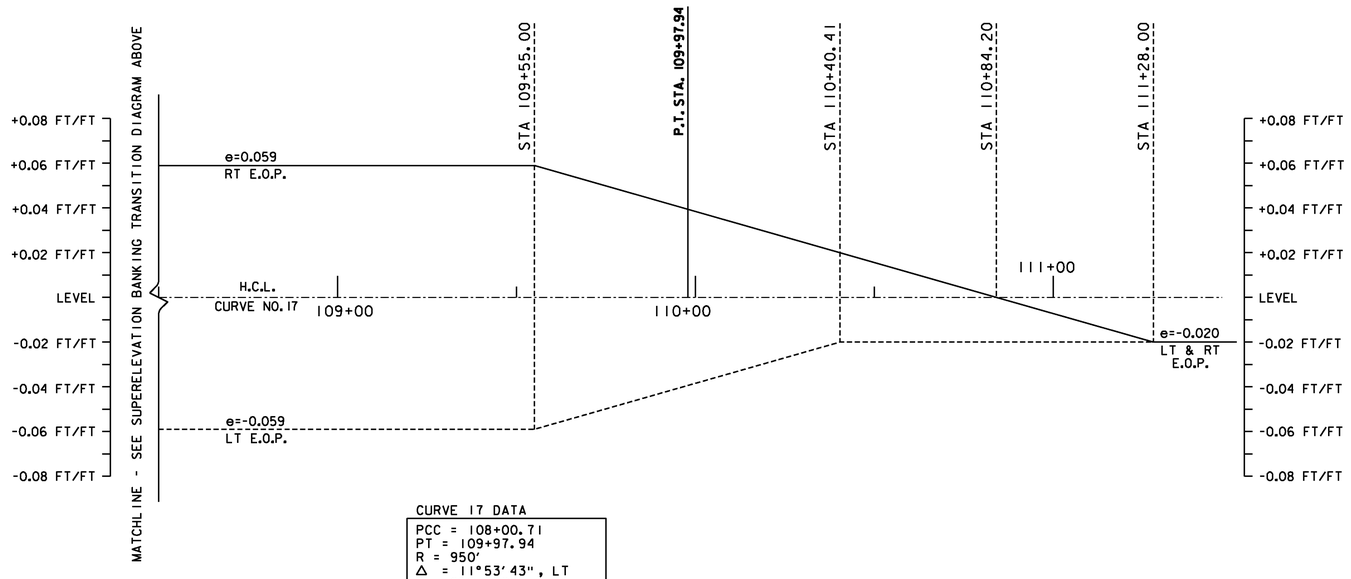
FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd05.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 74 OF 239



CURVE 16 DATA

PC = 104+69.14
PCC = 108+00.71
R = 1250'
Δ = 15°11'53", LT
D = 4°35'01"
e = 6.8
L = 331.57'

CURVE 16 BANKING TRANSITION DIAGRAM



CURVE 17 DATA

PCC = 108+00.71
PT = 109+97.94
R = 950'
Δ = 11°53'43", LT
D = 6°01'52"
e = 5.9
L = 197.23'

CURVE 17 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

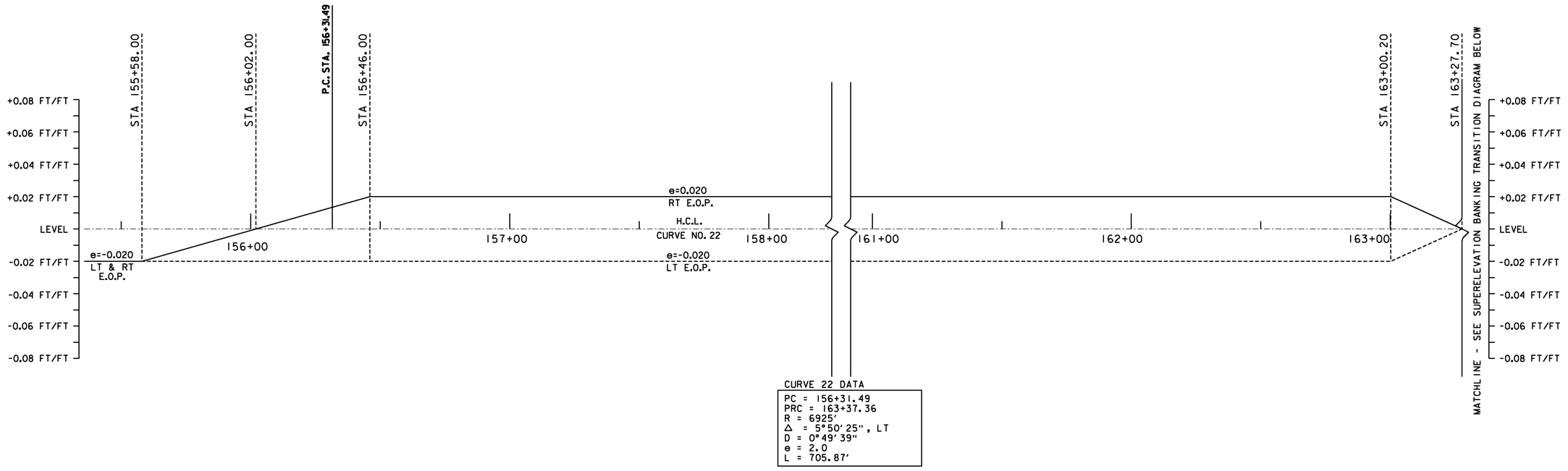
NOT TO SCALE

NOTE: CURVE #15 DOES NOT REQUIRE BANKING

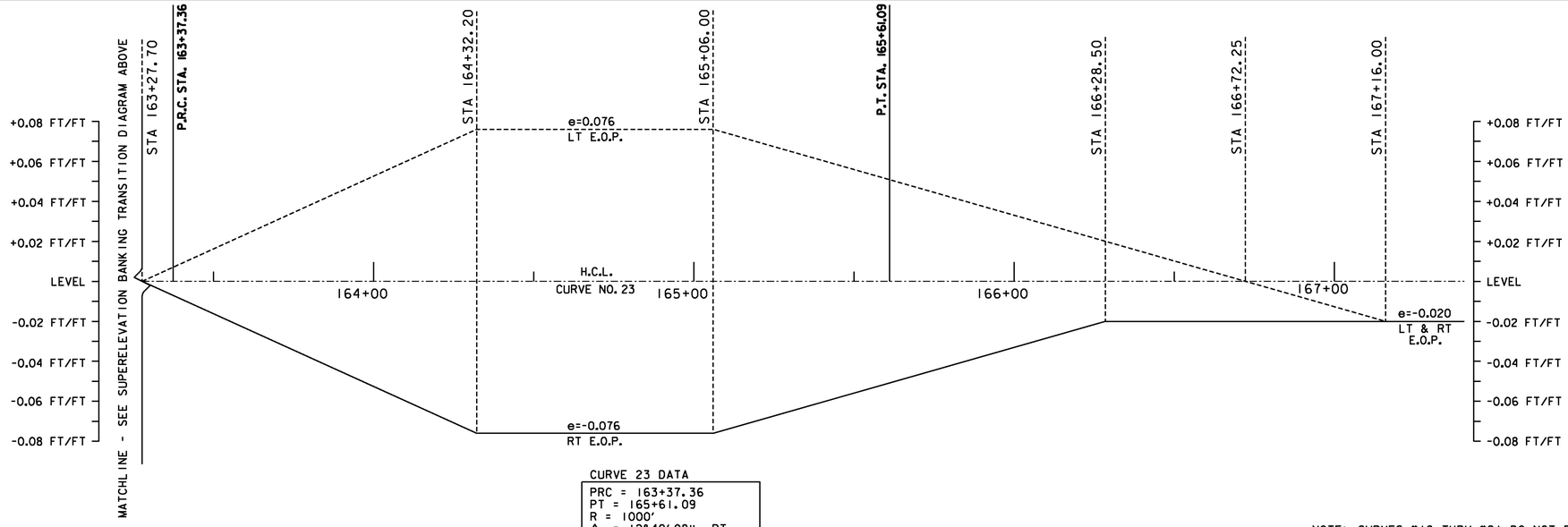
SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #6

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd06.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 75 OF 239



CURVE 22 BANKING TRANSITION DIAGRAM



CURVE 23 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

NOTE: CURVES #18 THRU #21 DO NOT REQUIRE BANKING

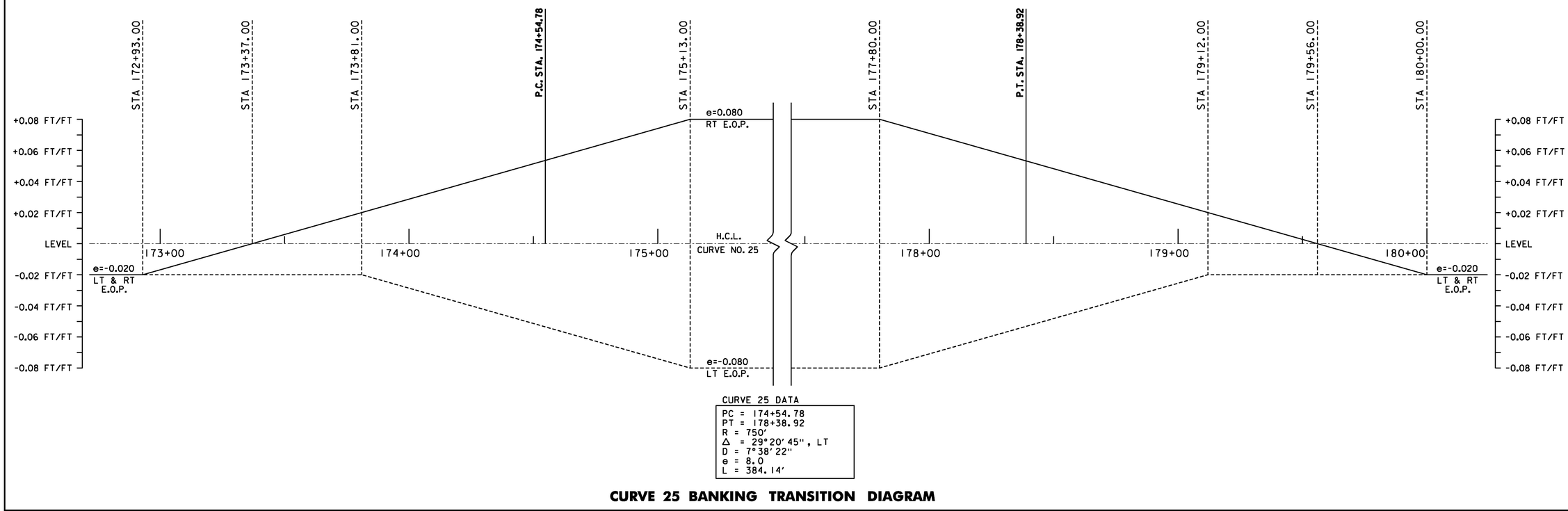
Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #7

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd07.i

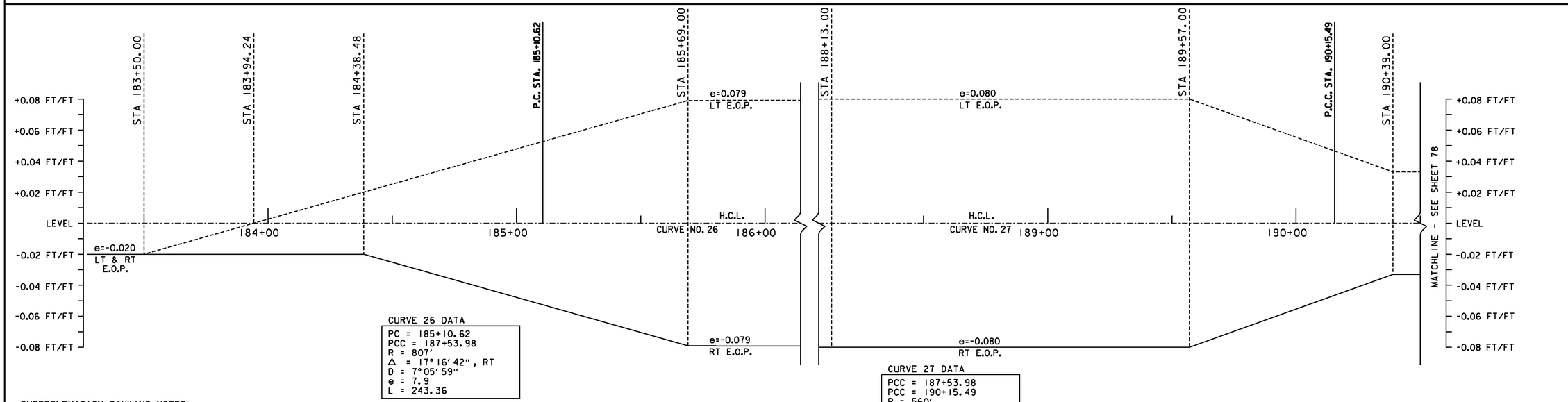
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC



CURVE 25 DATA

PC = 174+54.78
PT = 178+38.92
R = 750'
Δ = 29°20'45", LT
D = 7°38'22"
e = 8.0
L = 384.14'

CURVE 25 BANKING TRANSITION DIAGRAM



CURVE 26 DATA

PC = 185+10.62
PCC = 187+53.98
R = 807'
Δ = 17°16'42", RT
D = 7°05'59"
e = 7.9
L = 243.36

CURVE 27 DATA

PCC = 187+53.98
PCC = 190+15.49
R = 560'
Δ = 26°45'21", RT
D = 10°13'53"
e = 8.0
L = 261.51'

CURVE 26 & 27 BANKING TRANSITION DIAGRAMS

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

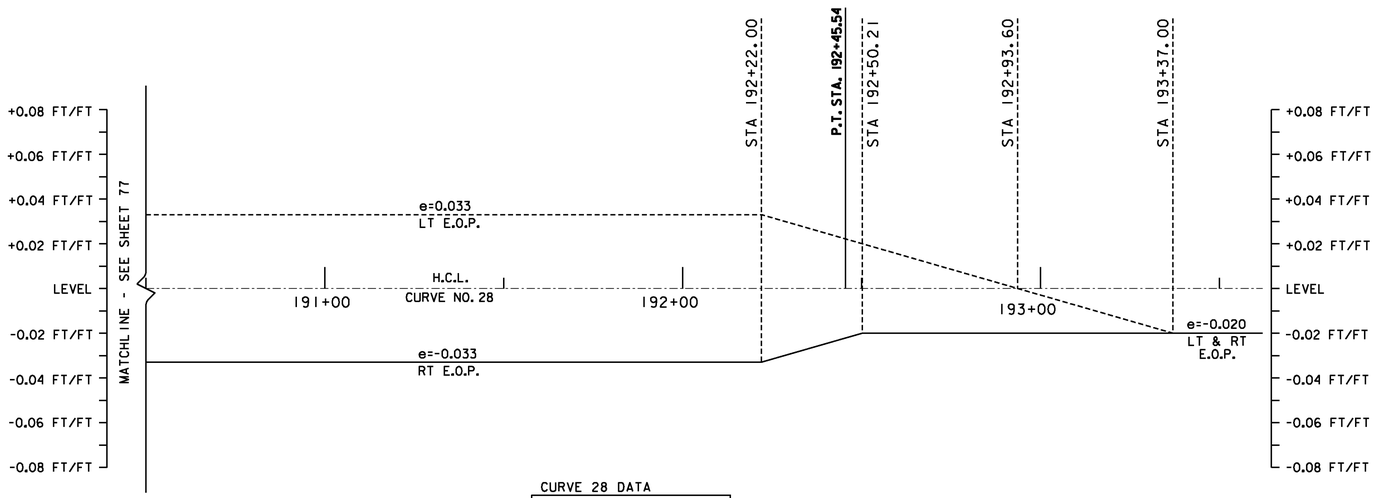
NOTE: CURVE #24 DOES NOT REQUIRE BANKING

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #8

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd08.i

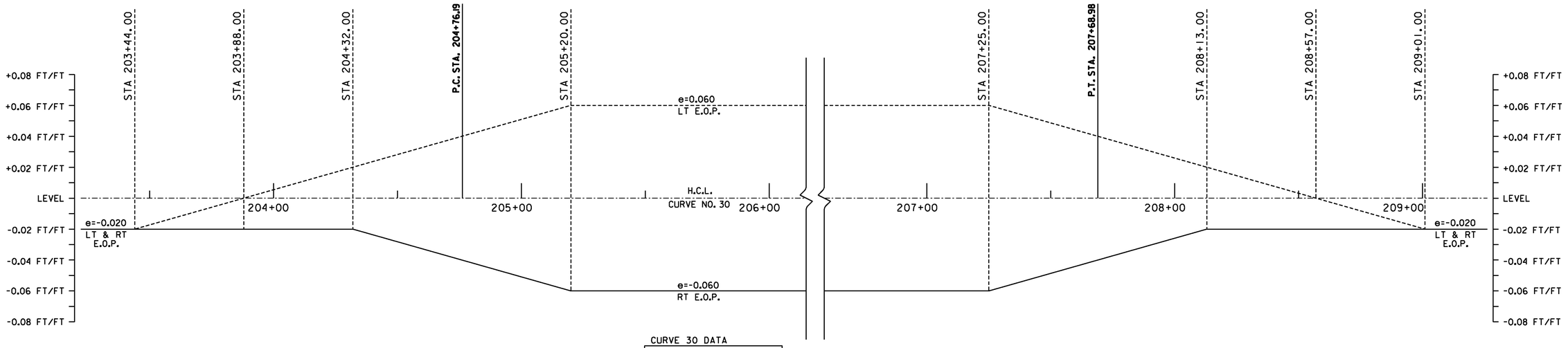
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 77 OF 239



CURVE 28 DATA

PCC = 190+15.49
PT = 192+45.54
R = 3467'
Δ = 3°48'07", RT
D = 1°39'09"
e = 3.3
L = 230.05'

CURVE 28 BANKING TRANSITION DIAGRAM



CURVE 30 DATA

PC = 204+76.19
PT = 207+68.98
R = 800'
Δ = 20°58'11", RT
D = 7°09'43"
e = 6.0
L = 292.79'

CURVE 30 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

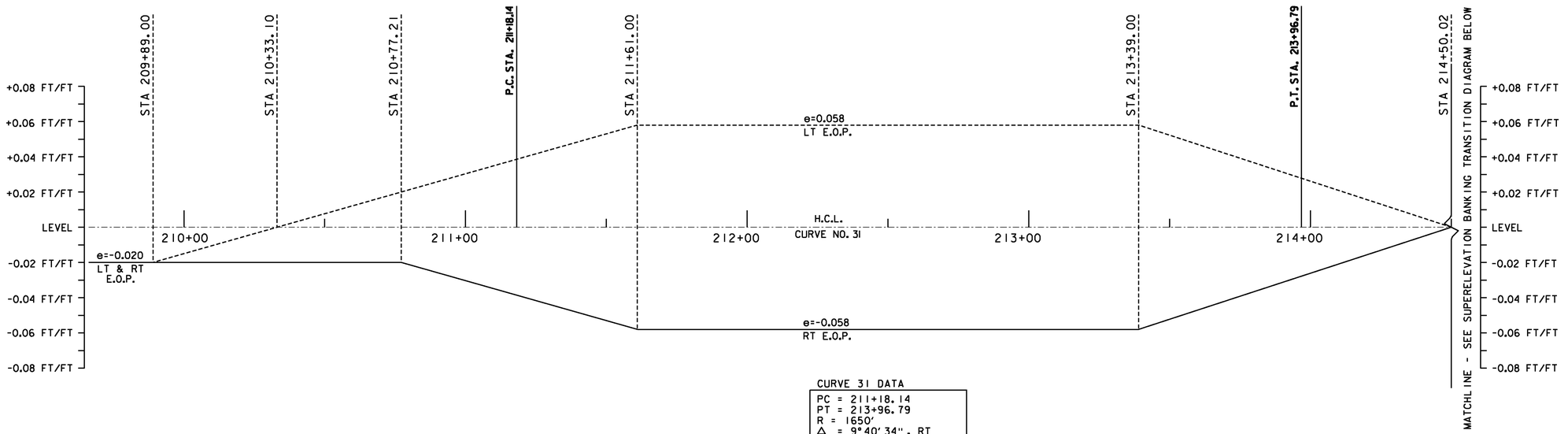
NOTE: CURVE #29 DOES NOT REQUIRE BANKING

Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #9

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

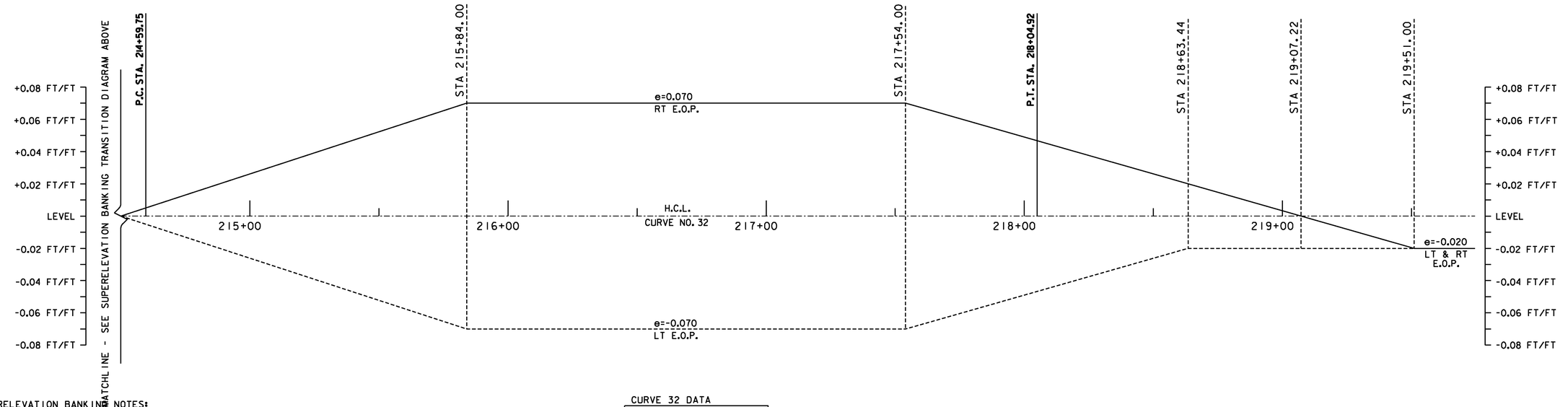
FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd09.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC



CURVE 31 DATA

PC = 211+18.14
PT = 213+96.79
R = 1650'
Δ = 9°40'34", RT
D = 3°28'21"
e = 5.8
L = 278.65'

CURVE 31 BANKING TRANSITION DIAGRAM



CURVE 32 DATA

PC = 214+59.75
PT = 218+04.92
R = 1200'
Δ = 16°28'50", LT
D = 4°46'29"
e = 7.0
L = 345.17'

CURVE 32 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

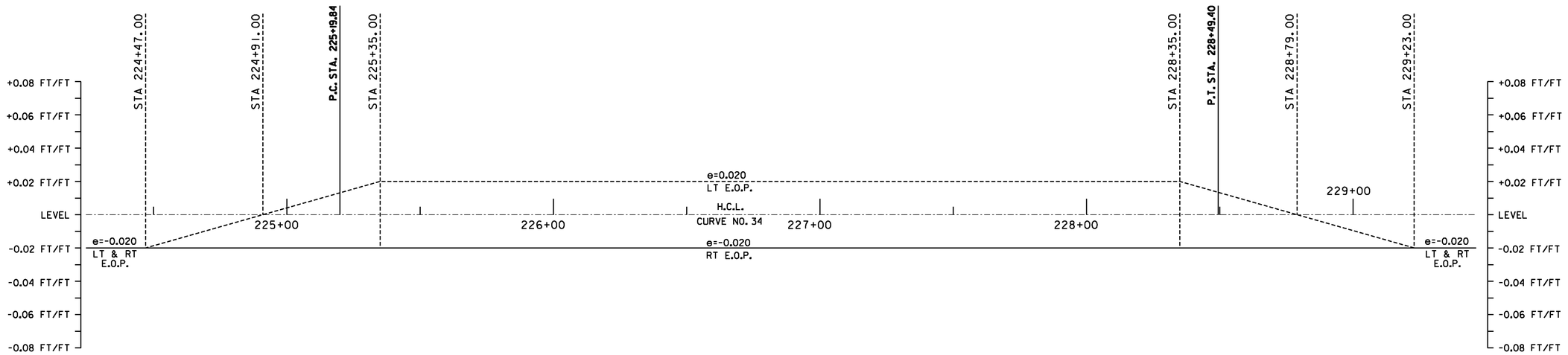
NOT TO SCALE

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #10

Stantec

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

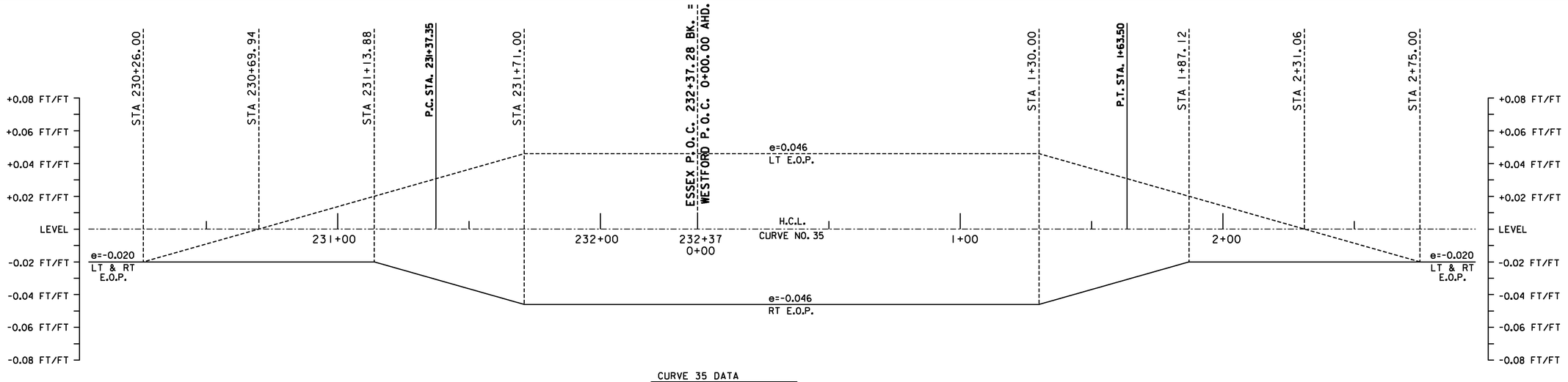
FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd10.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 79 OF 239



CURVE 34 DATA

PC = 225+19.84
PT = 228+49.40
R = 6500'
Δ = 2°54'18", RT
D = 0°52'53"
e = 2.0
L = 329.56'

CURVE 34 BANKING TRANSITION DIAGRAM



CURVE 35 DATA

PC = ESSEX 231+37.35
PT = WESTFORD 1+63.50
R = 2290'
Δ = 6°35'03", RT
D = 2°30'07"
e = 4.6
L = 263.15'

CURVE 35 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

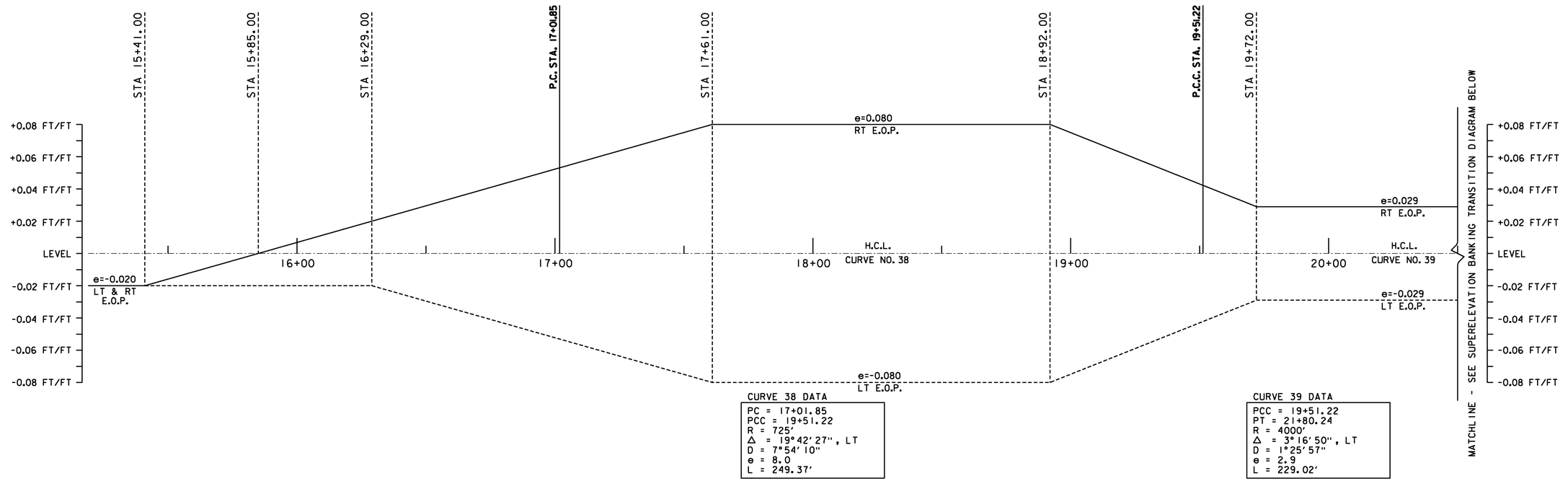
NOTE: CURVE #33 DOES NOT REQUIRE BANKING

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #11

Stantec

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

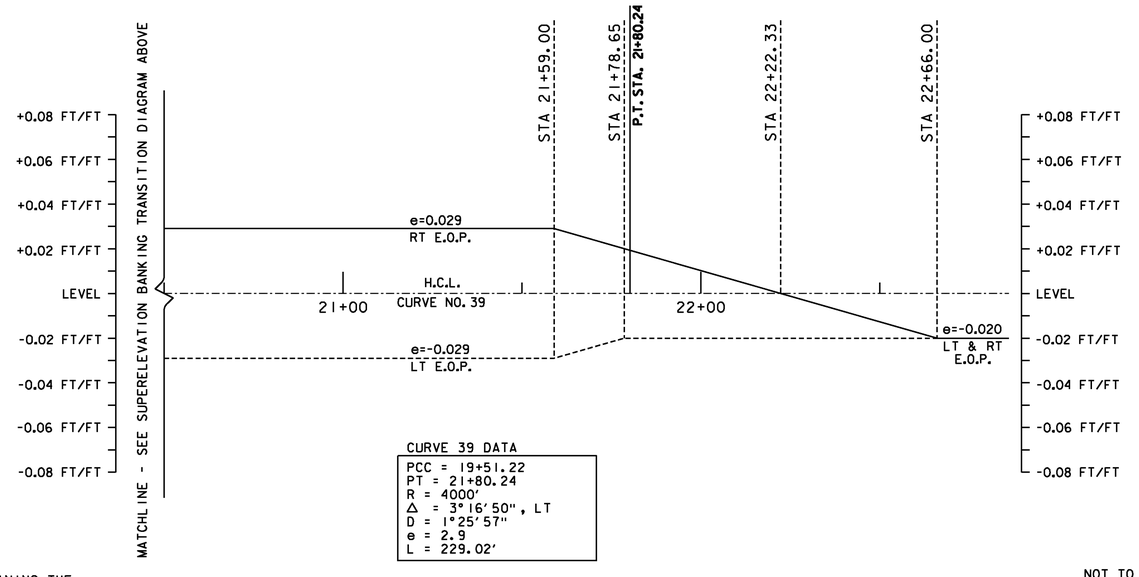
FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd11.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 80 OF 239



CURVE 38 DATA
PC = 17+01.85
PCC = 19+51.22
R = 725'
Δ = 19°42'27", LT
D = 7°54'10"
e = 8.0
L = 249.37'

CURVE 39 DATA
PCC = 19+51.22
PT = 21+80.24
R = 4000'
Δ = 3°16'50", LT
D = 1°25'57"
e = 2.9
L = 229.02'

CURVE 38 & 39 BANKING TRANSITION DIAGRAMS



CURVE 39 DATA
PCC = 19+51.22
PT = 21+80.24
R = 4000'
Δ = 3°16'50", LT
D = 1°25'57"
e = 2.9
L = 229.02'

CURVE 39 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

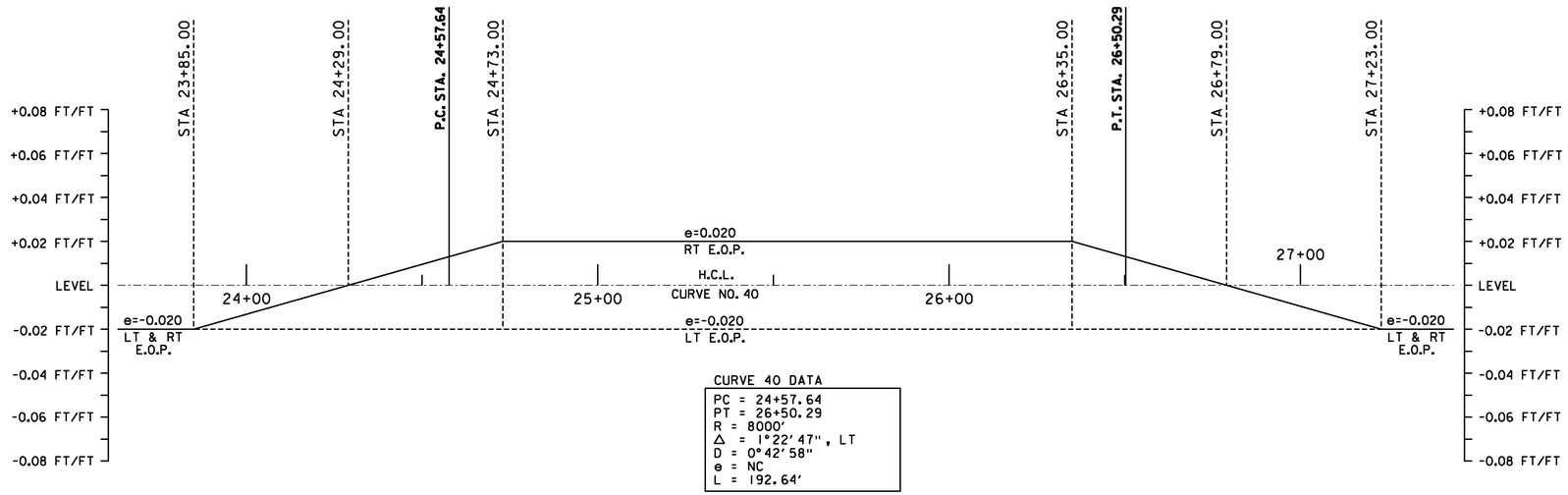
NOTE: CURVES #36 & #37 DO NOT REQUIRE BANKING

Stantec

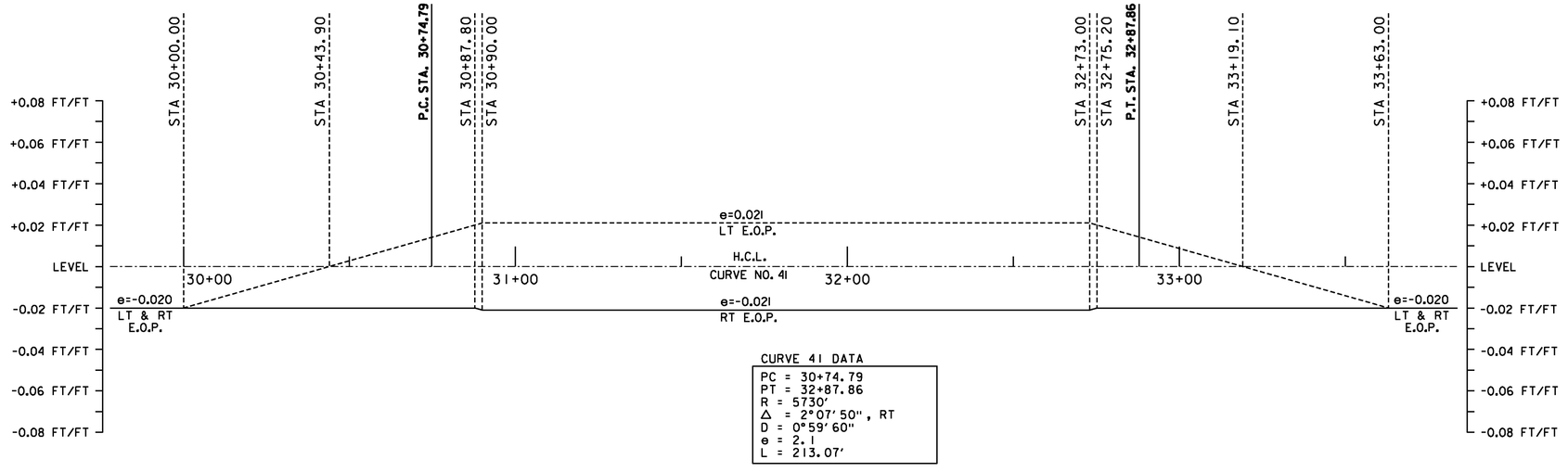
SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #12

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd12.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 81 OF 239



CURVE 40 BANKING TRANSITION DIAGRAM



CURVE 41 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.

2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

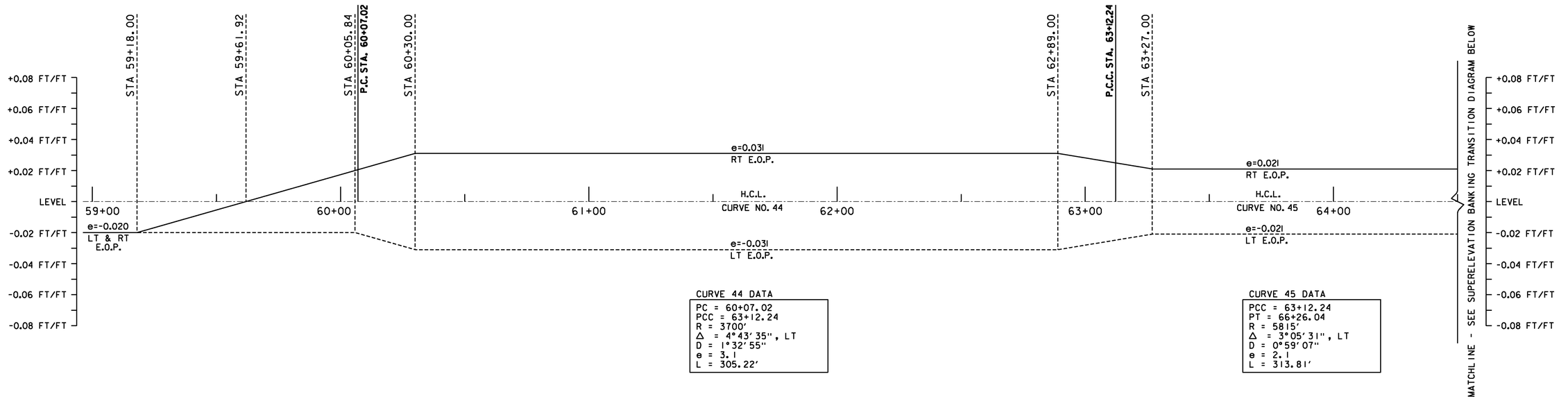
Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #13

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd13.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 82 OF 239



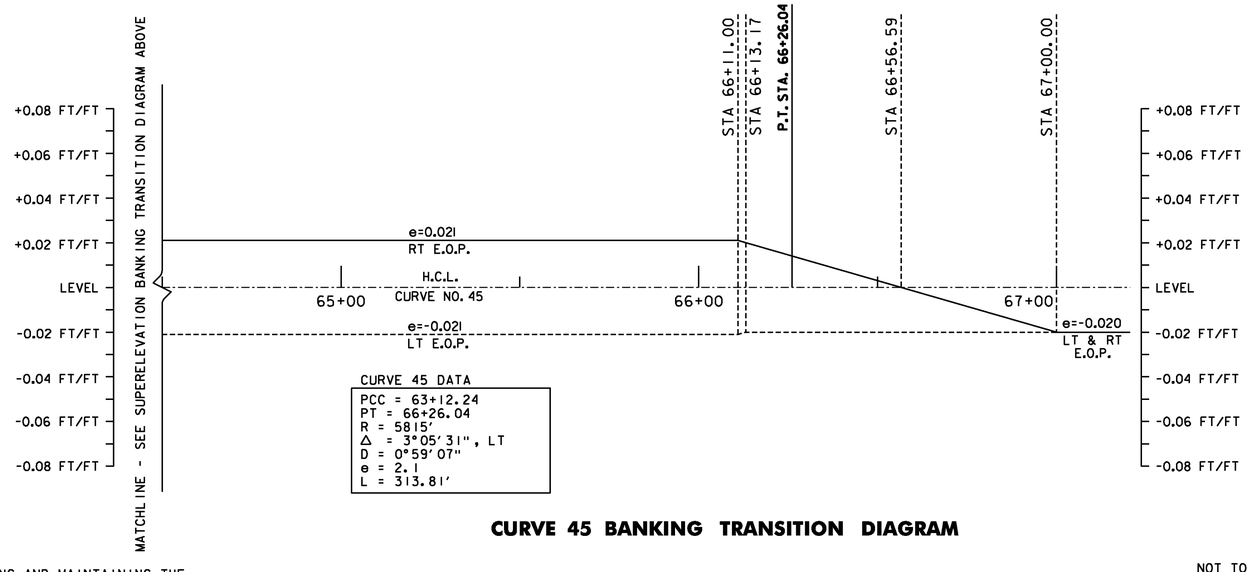
CURVE 44 DATA

PC = 60+07.02
PCC = 63+12.24
R = 3700'
Δ = 4°43'35", LT
D = 1°32'55"
e = 3.1
L = 305.22'

CURVE 45 DATA

PCC = 63+12.24
PT = 66+26.04
R = 5815'
Δ = 3°05'31", LT
D = 0°59'07"
e = 2.1
L = 313.81'

CURVE 44 & 45 BANKING TRANSITION DIAGRAMS



CURVE 45 DATA

PCC = 63+12.24
PT = 66+26.04
R = 5815'
Δ = 3°05'31", LT
D = 0°59'07"
e = 2.1
L = 313.81'

CURVE 45 BANKING TRANSITION DIAGRAM

SUPERELEVATION BANKING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL GEOMETRY OF THE ROADWAY.
2. SUPERELEVATION RATE, RUNOFF AND TANGENT RUNOUT LENGTHS WERE DETERMINED USING A DESIGN SPEED EQUAL TO THE POSTED SPEED. A e MAXIMUM SUPERELEVATION RATE OF 0.08 IS USED IN AREAS WITH A POSTED SPEED ABOVE 30 MPH. IN AREAS WITH AN INTERSECTING SIDE ROAD A e MAXIMUM SUPERELEVATION RATE OF 0.06 WAS USED. SEE THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS' (AASHTO'S) POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR MORE INFORMATION.

NOT TO SCALE

NOTE: CURVES #42 & #43 DO NOT REQUIRE BANKING

Stantec

SUPERELEVATION BANKING TRANSITION DIAGRAM SHEET #14

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226sbd14.i
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 83 OF 239

Element	Point Type	Station	Northing	Easting	Radius	Length	Delta / Theta	Rotation Direction	Maximum Banking	Design Speed
Tangent	POB	0+00.00	733813.1822	1494460.776						
	PC	1+04.74	733837.1846	1494562.734						
Arc	PC	1+04.74	733837.1846	1494562.734	1145	136.73	6°50'31.07"	Left	N/A	30
	PI	1+73.19	733852.8691	1494629.359						
	CC		734951.7172	1494300.356						
	PT	2+41.47	733876.379	1494693.641						
Tangent	PT	2+41.47	733876.379	1494693.641						
	PC	4+33.24	733942.2461	1494873.738						
Arc	PC	4+33.24	733942.2461	1494873.738	2200	453.69	11°48'56.20"	Right	N/A	30
	PI	6+60.89	734020.4397	1495087.538						
	CC		731876.0942	1495629.394						
	PT	8+86.93	734053.198	1495312.82						
Tangent	PT	8+86.93	734053.198	1495312.82						
	PC	10+39.80	734075.1968	1495464.107						
Arc	PC	10+39.80	734075.1968	1495464.107	15000	292.69	1°07'04.72"	Right	NC	30
	PI	11+86.15	734096.2558	1495608.931						
	CC		719231.3075	1497622.567						
	PT	13+32.49	734114.4851	1495754.139						
Tangent	PT	13+32.49	734114.4851	1495754.139						
	PC	19+29.21	734188.814	1496346.215						
Arc	PC	19+29.21	734188.814	1496346.215	420	197.02	26°52'39.01"	Left	0.080	40
	PI	20+29.57	734201.3148	1496445.791						
	CC		734605.543	1496293.899						
	PCC	21+26.23	734257.4824	1496528.96						
Arc	PCC	21+26.23	734257.4824	1496528.96	1110	157.76	8°08'35.87"	Left	0.055	40
	PI	22+05.25	734301.704	1496594.44						
	CC		735177.3569	1495907.727						
	PT	22+84.00	734354.7549	1496652.996						
Tangent	PT	22+84.00	734354.7549	1496652.996						
	PC	30+25.21	734852.4179	1497202.299						
Arc	PC	30+25.21	734852.4179	1497202.299	850	288.53	19°26'56.61"	Right	0.064	40
	PI	31+70.88	734950.2212	1497310.251						
	CC		734222.4975	1497773						
	PCC	33+13.75	735006.499	1497444.608						
Arc	PCC	33+13.75	735006.499	1497444.608	10108	306.1	1°44'06.35"	Right	NC	40
	PI	34+66.81	735065.6339	1497585.786						
	CC		725683.3366	1501349.772						
	PT	36+19.85	735120.4671	1497728.69						
Tangent	PT	36+19.85	735120.4671	1497728.69						
	PC	38+61.52	735207.044	1497954.324						
Arc	PC	38+61.52	735207.044	1497954.324	1800	391.9	12°28'28.18"	Right	0.055	50
	PI	40+58.25	735277.5192	1498137.994						
	CC		733526.5103	1498599.154						
	PT	42+53.42	735306.657	1498332.551						
Tangent	PT	42+53.42	735306.657	1498332.551						
	PC	45+21.17	735346.3138	1498597.344						
Arc	PC	45+21.17	735346.3138	1498597.344	20000	296.78	0°51'00.72"	Left	NC	50
	PI	46+69.56	735368.2924	1498744.098						
	CC		755125.7219	1495635.079						
	PT	48+17.94	735392.4462	1498890.509						
Tangent	PT	48+17.94	735392.4462	1498890.509						
	PC	51+42.69	735445.3055	1499210.924						
Arc	PC	51+42.69	735445.3055	1499210.924	1500	648.92	24°47'12.31"	Right	0.062	50
	PI	54+72.30	735498.9574	1499536.143						
	CC		733965.3098	1499455.081						
	PT	57+91.60	735411.3211	1499853.894						
Tangent	PT	57+91.60	735411.3211	1499853.894						
	PC	59+23.86	735376.157	1499981.392						
Arc	PC	59+23.86	735376.157	1499981.392	1350	529.52	22°28'24.79"	Left	0.065	50
	PI	61+92.07	735304.8472	1500239.946						
	CC		736677.5671	1500340.323						
	PCC	64+53.38	735337.7872	1500506.124						
Arc	PCC	64+53.38	735337.7872	1500506.124	200	224.28	64°15'03.54"	Left	0.060	
	PI	65+78.97	735353.2108	1500630.757						
	CC		735536.2731	1500481.561						
	PCC	66+77.66	735472.169	1500671.009						
Arc	PCC	66+77.66	735472.169	1500671.009	2260	123.79	3°08'18.02"	Left	N/A	50
	PI	67+39.57	735530.8132	1500690.852						
	CC		736196.5458	1498530.243						
	PT	68+01.45	735590.4558	1500707.456						
Tangent	PT	68+01.45	735590.4558	1500707.456						
	PC	68+24.91	735613.0551	1500713.747						
Arc	PC	68+24.91	735613.0551	1500713.747	4500	363.63	4°37'47.63"	Right	0.026	50
	PI	70+06.82	735788.306	1500762.533						
	CC		734406.2389	1505048.905						
	PT	71+88.54	735959.047	1500825.306						
Tangent	PT	71+88.54	735959.047	1500825.306						
	PC	98+51.48	738458.4236	1501744.203						
Arc	PC	98+51.48	738458.4236	1501744.203	15000	246.98	0°56'36.29"	Right	NC	50
	PI	99+74.98	738574.3335	1501786.817						
	CC		733262.3966	1515822.866						
	PT	100+98.47	738689.5261	1501831.334						
Tangent	PT	100+98.47	738689.5261	1501831.334						
	PC	104+69.14	739035.2793	1501964.953						

Element	Point Type	Station	Northing	Easting	Radius	Length	Delta / Theta	Rotation Direction	Maximum Banking	Design Speed
Arc	PC	104+69.14	739035.2793	1501964.953	1250	331.57	15°11'52.92"	Left	0.068	50
	PI	106+35.90	739190.8313	1502025.067						
	CC		739485.8734	1500798.992						
	PCC	108+00.71	739356.7023	1502042.3						
Arc	PCC	108+00.71	739356.7023	1502042.3	950	197.23	11°53'43.39"	Left	0.059	50
	PI	108+99.68	739455.1447	1502052.528						
	CC		739454.8723	1501097.386						
	PT	109+97.94	739553.5812	1502042.244						
Tangent	PT	109+97.94	739553.5812	1502042.244						
	PC	111+39.62	739694.4929	1502027.523						
Arc	PC	111+39.62	739694.4929	1502027.523	8000	199.31	1°25'38.80"	Right	NC	50
	PI	112+39.28	739793.6131	1502017.168						
	CC		740525.7256	1509984.222						
	PT	113+38.93	739892.9605	1502009.285						
Tangent	PT	113+38.93	739892.9605	1502009.285						
	PC	126+35.53	741185.4934	1501906.73						
Arc	PC	126+35.53	741185.4934	1501906.73	50000	525.98	0°36'09.82"	Right	NC	50
	PI	128+98.52	741447.6609	1501885.929						
	CC		745140.2757	1551750.082						
	PT	131+61.50	741710.0328	1501867.886						
Tangent	PT	131+61.50	741710.0328	1501867.886						
	PC	134+63.68	742011.4956	1501847.156						
Arc	PC	134+63.68	742011.4956	1501847.156	10000	140.87	0°48'25.56"	Left	NC	50
	PI	135+34.11	742081.7635	1501842.324						
	CC		741325.447	1491870.717						
	PT	136+04.54	742151.9564	1501836.502						
Tangent	PT	136+04.54	742151.9564	1501836.502						
	PC	143+94.85	742939.5544	1501771.183						
Arc	PC	143+94.85	742939.5544	1501771.183	8000	419.35	3°00'12.08"	Left	NC	50
	PI	146+04.57	743148.5586	1501753.849						
	CC		742278.3468	1493798.555						
	PT	148+14.19	743356.3675	1501725.589						
Tangent	PT	148+14.19	743356.3675	1501725.589						
	PC	156+31.49	744166.2114	1501615.456						
Arc	PC	156+31.49	744166.2114	1501615.456	6925	705.87	5°50'24.72"	Left	0.020	50
	PI	159+84.73	744516.2305	1501567.856						
	CC		743233.0497	1494753.617						
	PRC	163+37.36	744859.5894	1501484.887						
Arc	PRC	163+37.36	744859.5893	1501484.887	1000	223.73	12°49'07.74"	Right	0.076	50
	PI	164+49.70	744968.7809	1501458.502						
	CC		745094.4687	1502456.911						
	PT	165+61.09	745081.1051	1501457						
Tangent	PT	165+61.09	745081.1051	1501457						
	PC	167+64.00	745283.9962	1501454.289						
Arc	PC	167+64.00	745283.9962	1501454.289	8000	319.32	2°17'13.14"	Left	NC	50
	PI	169+23.68	745443.6648	1501452.155						
	CC		745177.088	1493455.003						
	PT	170+83.32	745603.121	1501443.651						
Tangent	PT	170+83.32	745603.121	1501443.651						
	PC	174+54.78	745974.0522	1501423.869						
Arc	PC	174+54.78	745974.0522	1501423.869	750	384.14	29°20'45.31"	Left	0.080	50
	PI	176+51.16	746170.1541	1501413.411						
	CC		745934.1116	1500674.934						
	PT	178+38.92	746335.9663	1501308.189						
Tangent	PT	178+38.92	746335.9663	1501308.189						
	PC	185+10.62	746903.1079	1500948.29						
Arc	PC	185+10.62	746903.1079	1500948.29	807	243.36	17°16'41.97"	Right	0.790	50
	PI	186+33.23	747006.6338	1500882.594						
	CC		747335.5035	1501629.673						
	PCC	187+53.98	747125.0006	1500850.611						
Arc	PCC	187+53.98	747125.0006	1500850.611	560	261.51	26°45'21.44"	Right	0.800	50
	PI	188+87.16	747253.5732	1500815.871						
	CC		747271.0745	1501391.224						
	PCC	190+15.49	747384.0197	1500842.732						
Arc	PCC	190+15.49	747384.0196	1500842.732	3467	230.05	3°48'06.53"	Right	0.033	50
	PI	191+30.55	747496.7221	1500865.94						
	CC		746684.7676	1504238.485						
	PT	192+45.54	747607.6378	1500896.569						
Tangent	PT	192+45.54	747607.6378	1500896.569						
	PC	196+80.70	748027.1039	1501012.405						
Arc	PC	196+80.70	748027.1039	1501012.405	22000	687.42	1°47'25.03"	Left	NC	50
	PI	200+24.44	748358.4403	1501103.903						
	CC		753883.2169	1479806.134						
	PT	203+68.12	748692.4736	1501185.006						
Tangent	PT	203+68.12	748692.4736	1501185.006						
	PC	204+76.19	748797.4873	1501210.503						
Arc	PC	204+76.19	748797.4873	1501210.503	800	292.79	20°58'11.22"	Right	0.060	50
	PI	206+24.24	748941.3604	1501245.435						
	CC		748608.733	1501987.917						
	PT	207+68.98	749063.2033	1501329.542						

Element	Point Type	Station	Northing	Easting	Radius	Length	Delta / Theta	Rotation Direction	Maximum Banking	Design Speed
Tangent	PT	207+68.98	749063.2033	1501329.542						
	PC	211+18.14	749350.5476	1501527.894						
Arc	PC	211+18.14	749350.5476	1501527.894	1650	278.65	9°40'33.53"	Right	0.580	50
	PI	212+57.79	749465.4801	1501607.231						
	CC		748413.2027	1502885.791						
	PT	213+96.79	749565.443	1501704.756						
Tangent	PT	213+96.79	749565.443	1501704.756						
	PC	214+59.75	749610.5141	1501748.729						
Arc	PC	214+59.75	749610.5141	1501748.729	1200	345.17	16°28'49.77"	Left	0.070	50
	PI	216+33.54	749734.9043	1501870.086						
	CC		750448.5071	1500889.794						
	PT	218+04.92	749888.6119	1501951.17						
Tangent	PT	218+04.92	749888.6119	1501951.17						
	PC	220+72.89	750125.6237	1502076.198						
Arc	PC	220+72.89	750125.6237	1502076.198	10000	151.75	0°52'10.13"	Left	NC	50
	PI	221+48.77	750192.7363	1502111.601						
	CC		754791.4168	1493231.404						
	PT	222+24.64	750260.3783	1502145.982						
Tangent	PT	222+24.64	750260.3783	1502145.982						
	PC	225+19.84	750523.5313	1502279.735						
Arc	PC	225+19.84	750523.5313	1502279.735	6500	329.56	2°54'18.03"	Right	0.020	50
	PI	226+84.65	750670.4584	1502354.414						
	CC		747578.3563	1508074.21						
	PT	228+49.40	750813.412	1502436.444						
Tangent	PT	228+49.40	750813.412	1502436.444						
	PC	231+37.35	751063.1669	1502579.758						
Arc	PC	231+37.35	751063.1669	1502579.758	2290	263.15	6°35'02.69"	Right	0.046	50
	PI	0+32.07	751177.4153	1502645.315						
	CC		749923.4319	1504565.986	**Essex 232+37.28 BK = Westford 0+00.00 AHD**					
	PT	1+63.50	751283.3932	1502723.541						
Tangent	PT	1+63.50	751283.3932	1502723.541						
	PC	6+27.62	751656.8023	1502999.165						
Arc	PC	6+27.62	751656.8023	1502999.165	22920	172.47	0°25'52.16"	Right	NC	50
	PI	7+13.86	751726.1859	1503050.379						
	CC		738045.3121	1521439.711						
	PT	8+00.09	751795.1822	1503102.113						
Tangent	PT	8+00.09	751795.1822	1503102.113						
	PC	11+28.26	752057.7396	1503298.984						
Arc	PC	11+28.26	752057.7396	1503298.984	15000	235.45	0°53'57.74"	Right	NC	50
	PI	12+45.99	752151.9317	1503369.611						
	CC		743059.1335	1515300.029						
	PT	13+63.72	752245.0036	1503441.707						
Tangent	PT	13+63.72	752245.0036	1503441.707						
	PC	17+01.85	752512.3149	1503648.776						
Arc	PC	17+01.85	752512.3149	1503648.776	725	249.37	19°42'26.64"	Left	0.080	50
	PI	18+27.78	752611.8688	1503725.894						
	CC		752956.2986	1503075.624						
	PCC	19+51.22	752731.597	1503764.924						
Arc	PCC	19+51.22	752731.5969	1503764.924	4000	229.02	3°16'49.89"	Left	0.029	50
	PI	20+65.76	752840.4997	1503800.424						
	CC		753971.3302	1499961.89						
	PT	21+80.24	752951.2557	1503829.635						
Tangent	PT	21+80.24	752951.2557	1503829.635						
	PC	24+57.64	753219.4863	1503900.378						
Arc	PC	24+57.64	753219.4863	1503900.378	8000	192.64	1°22'46.92"	Left	0.020	50
	PI	25+53.97	753312.6272	1503924.943						
	CC		755259.6354	1496164.889						
	PT	26+50.29	753406.3326	1503947.258						
Tangent	PT	26+50.29	753406.3326	1503947.258						
	PC	30+74.79	753819.287	1504045.599						
Arc	PC	30+74.79	753819.287	1504045.599	5730	213.07	2°07'49.91"	Right	0.021	50
	PI	31+81.34	753922.9351	1504070.282						
	CC		752491.8589	1509619.721						
	PT	32+87.86	754025.594	1504098.801						
Tangent	PT	32+87.86	754025.594	1504098.801						
	PC	39+79.61	754692.1012	1504283.96						
Arc	PC	39+79.61	754692.1012	1504283.96	11460	28.77	0°08'37.91"	Right	NC	50
	PI	39+93.99	754705.9636	1504287.811						
	CC		751624.631	1515325.8						
	PT	40+08.38	754719.8164	1504291.697						
Tangent	PT	40+08.38	754719.8164	1504291.697						
	PC	53+97.95	756057.7393	1504666.999						
Arc	PC	53+97.95	756057.7393	1504666.999	11460	34.95	0°10'29.12"	Left	NC	50
	PI	54+15.42	756074.5666	1504671.719						
	CC		759152.9246	1493632.896						
	PT	54+32.90	756091.4082	1504676.388						
Tangent	PT	54+32.90	756091.4082	1504676.388						
	PC	60+07.02	756644.6604	1504829.762						
Arc	PC	60+07.02	756644.6604	1504829.762	3700	305.22	4°43'35.18"	Left	0.031	50
	PI	61+59.71	756791.8073	1504870.555						
	CC		757633.1081	1501264.237						
	PCC	63+12.24	756941.8152	1504899.084						
Arc	PCC	63+12.24	756941.8152	1504899.084	5815	313.81	3°05'31.11"	Left	0.021	50
	PI	64+69.18	757095.9934	1504928.406						
	CC		758028.2661	1499186.48						
	PT	66+26.04	757251.5287	1504949.37						
Tangent	PT	66+26.04	757251.5287	1504949.37						
	POE	68+86.48	757509.6353	1504984.158						

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HORIZONTAL ALIGNMENT TABLE SHEET

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226hats.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 84 OF 239

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	POB	0+34.33	487.89						
		0+50.00	487.53	22.67	-2.30%				
	PVC	0+57.00	487.37						
Symmetrical Parabola	PVC	0+57.00	487.37						
	PVI	0+82.00	486.80	50	-2.30%	-0.99%	38.31	0.0800	
		1+00.00	486.62						
	PVT	1+07.00	486.55						
Linear	PVT	1+07.00	486.55						
		1+50.00	486.12	84.29	-0.99%				
	PVC	1+91.29	485.71						
Symmetrical Parabola	PVC	1+91.29	485.71						
		2+00.00	485.62						
		2+50.00	485.19	150	-0.99%	-0.42%	262.39	0.1100	
	PVI	2+66.29	484.96						
		3+00.00	484.85						
	PVT	3+41.29	484.65						
Linear	PVT	3+41.29	484.65						
		3+50.00	484.61						
		4+00.00	484.40	130.22	-0.42%				
		4+50.00	484.19						
	PVC	4+71.51	484.10						
Symmetrical Parabola	PVC	4+71.51	484.10						
		5+00.00	484.14						
	PVI	5+46.51	483.78	150	-0.42%	5.73%	24.36	1.1500	
		5+50.00	485.03						
		6+00.00	486.94						
	PVT	6+21.51	488.08						
	VLOW	4+81.82	484.07						
Linear	PVT	6+21.51	488.08						
		6+50.00	489.71	32.02	5.73%				
	PVC	6+53.53	489.92						
Symmetrical Parabola	PVC	6+53.53	489.92						
		7+00.00	492.37						
		7+50.00	494.56						
		8+00.00	496.27						
	PVI	8+03.53	498.52	300	5.73%	0.00%	52.34	-2.1500	338.28
		8+50.00	497.50						
		9+00.00	498.25						
		9+50.00	498.52						
	PVT	9+53.53	498.52						
Linear	PVT	9+53.53	498.52						
		10+00.00	498.52	68.84	0.00%				
	PVC	10+22.36	498.52						
Symmetrical Parabola	PVC	10+22.36	498.52						
		10+50.00	498.44						
		11+00.00	497.83						
	PVI	11+37.04	498.53						
		11+50.00	496.64	229.36	0.00%	-5.32%	43.08	-1.5300	317.38
		12+00.00	494.87						
		12+50.00	492.52						
	PVT	12+51.72	492.43						
	VHIGH	10+22.51	498.52						
Linear	PVT	12+51.72	492.43						
		13+00.00	489.86						
		13+50.00	487.20	142.78	-5.32%				
	PVC	13+94.51	484.83						
Symmetrical Parabola	PVC	13+94.51	484.83						
		14+00.00	484.54						
		14+50.00	482.09						
		15+00.00	479.98						
		15+50.00	478.22						
	PVI	15+85.00	474.70	380.99	-5.32%	-0.09%	72.8	2.4900	
		16+00.00	476.80						
		16+50.00	475.72						
		17+00.00	474.99						
		17+50.00	474.60						
	PVT	17+75.50	474.53						
Linear	PVT	17+75.50	474.53						
	PVC	17+75.50	474.53	0	-0.09%				
Symmetrical Parabola	PVC	17+75.50	474.53						
		18+00.00	474.64						
		18+50.00	475.72						
	PVI	18+58.00	474.46	165	-0.09%	7.40%	22.05	1.5400	
		19+00.00	477.93						
	PVT	19+40.50	480.56						
		19+50.00	481.26						
	VLOW	17+77.42	474.53						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	19+40.50	480.56						
		20+00.00	484.96	85.43	7.40%				
	PVC	20+25.93	486.88						
Symmetrical Parabola	PVC	20+25.93	486.88						
		20+50.00	488.45						
	PVI	20+95.93	492.05						
		21+00.00	490.39	140	7.40%	-2.62%	13.98	-1.7500	177.76
		21+50.00	490.55						
	PVT	21+65.93	490.22						
	VHIGH	21+29.32	490.70						
Linear	PVT	21+65.93	490.22						
	PVC	21+75.47	489.97	9.55	-2.62%				
Symmetrical Parabola	PVC	21+75.47	489.97						
		22+00.00	489.37						
		22+50.00	488.37						
		23+00.00	487.70						
		23+50.00	487.34						
		24+00.00	487.30						
	PVI	24+25.47	483.42	500	-2.62%	3.75%	78.5	3.9800	
		24+50.00	487.58						
		25+00.00	488.18						
		25+50.00	489.10						
		26+00.00	490.33						
		26+50.00	491.89						
	PVT	26+75.47	492.80						
	VLOW	23+81.06	487.28						
Linear	PVT	26+75.47	492.80						
		27+00.00	493.72	53.78	3.75%				
	PVC	27+29.25	494.82						
Symmetrical Parabola	PVC	27+29.25	494.82						
		27+50.00	495.52						
		28+00.00	496.60						
	PVI	28+14.25	498.00						
		28+50.00	496.82	170	3.75%	-2.13%	28.9	-1.2500	268.47
	PVT	28+99.25	496.19						
	VHIGH	28+37.64	496.85						
Linear	PVT	28+99.25	496.19						
		29+00.00	496.18	20.67	-2.13%				
	PVC	29+19.93	495.75						
Symmetrical Parabola	PVC	29+19.93	495.75						
		29+50.00	495.13						
		30+00.00	494.22						
	PVI	30+44.93	493.09	250	-2.13%	-0.78%	185.48	0.4200	
		30+50.00	493.43						
		31+00.00	492.79						
		31+50.00	492.27						
	PVT	31+69.93	492.11						
Linear	PVT	31+69.93	492.11						
		32+00.00	491.87	35.07	-0.78%				
	PVC	32+05.00	491.83						
Symmetrical Parabola	PVC	32+05.00	491.83						
		32+50.00	491.44						
		33+00.00	490.91						
		33+50.00	490.27						
	PVI	33+70.00	490.54	330	-0.78%	-2.11%	249.07	-0.5500	979.48
		34+00.00	489.54						
		34+50.00	488.71						
		35+00.00	487.77						
	PVT	35+35.00	487.06						
Linear	PVT	35+35.00	487.06						
		35+50.00	486.74						
		36+00.00	485.69	134.41	-2.11%				
		36+50.00	484.63						
	PVC	36+69.41	484.22						
Symmetrical Parabola	PVC	36+69.41	484.22						
		37+00.00	483.55						
	PVI	37+44.41	482.64						
		37+50.00	482.31	150	-2.11%	-3.11%	150.23	-0.1900	1155.79
		38+00.00	480.90						
	PVT	38+19.41	480.31						
Linear	PVT	38+19.41	480.31						
		38+50.00	479.36						
		39+00.00	477.81	80.61	-3.11%				
	PVC	39+00.02	477.81						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Symmetrical Parabola	PVC	39+00.02	477.81						
		39+50.00	476.37						
		40+00.00	475.17						
		40+50.00	474.20						
	PVI	40+60.02	472.84	320	-3.11%	-0.10%	106.42	1.2000	
		41+00.00	473.47						
		41+50.00	472.98						
		42+00.00	472.71						
	PVT	42+20.02	472.68						
Linear	PVT	42+20.02	472.68						
	PVC	42+36.62	472.66	16.6	-0.10%				
Symmetrical Parabola	PVC	42+36.62	472.66						
		42+50.00	472.62						
	PVI	42+56.62	472.64	40	-0.10%	-1.03%	43.15	-0.0500	1184.02
	PVT	42+76.62	472.43						
Linear	PVT	42+76.62	472.43						
		43+00.00	472.19	33.38	-1.03%				
	PVC	43+10.00	472.09						
Symmetrical Parabola	PVC	43+10.00	472.09						
		43+50.00	471.75						
	PVI	43+75.00	471.42						
		44+00.00	471.52	130	-1.03%	0.11%	114.73	0.1800	
	PVT	44+40.00	471.49						
	VLOW	44+27.88	471.49						
Linear	PVT	44+40.00	471.49						
		44+50.00	471.50						
		45+00.00	471.55						
		45+50.00	471.61	257.78	0.11%				
		46+00.00	471.66						
		46+50.00	471.71						
	PVC	46+97.78	471.76						
Symmetrical Parabola	PVC	46+97.78	471.76						
		47+00.00	471.77						
		47+50.00	471.80						
	PVI	47+97.78	471.87	200	0.11%	-0.18%	702.23	-0.0700	3889.07
		48+00.00	471.80						
		48+50.00	471.76						
	PVT	48+97.78	471.69						
	VHIGH	47+71.99	471.80						
Linear	PVT	48+97.78	471.69						
		49+00.00	471.69						
		49+50.00	471.60	182.22	-0.18%				
		50+00.00	471.51						
		50+50.00	471.42						
	PVC	50+80.00	471.36						
Symmetrical Parabola	PVC	50+80.00	471.36						
		51+00.00	471.33						
	PVI	51+20.00	471.29	80	-0.18%	-0.15%	2418.6	0.0000	
		51+50.00	471.25						
	PVT	51+60.00	471.23						
Linear	PVT	51+60.00	471.23						
	PVC	51+72.08	471.22	12.08	-0.15%				
Symmetrical Parabola	PVC	51+72.08	471.22						
		52+00.00	471.28						
	PVI	52+22.08	471.14						
		52+50.00	471.91	100	-0.15%	2.53%	37.42	0.3300	
	PVT	52+72.08	472.41						
	VLOW	51+77.55	471.21						
Linear	PVT	52+72.08	472.41						
		53+00.00	473.11	37.45	2.53%				
	PVC	53+09.53	473.35						
Symmetrical Parabola	PVC	53+09.53	473.35						
	PVI	53+34.53	473.98						
		53+50.00	474.26	50	2.53%	1.85%	73.92	-0.0400	1620.36
	PVT	53+59.53	474.45						
Linear	PVT	53+59.53	474.45						
		54+00.00	475.19	65.52	1.85%				
	PVC	54+25.05	475.66						
Symmetrical Parabola	PVC	54+25.05	475.66						
		54+50.00	476.01						
	PVI	54+80.05	476.68						
		55+00.00	476.07	110	1.85%	-1.97%	28.8	-0.5300	337.51
	PVT	55+35.05	475.59						
	VHIGH	54+78.31	476.15						
Linear	PVT	55+35.05	475.59						
	PVC	55+47.90	475.34	12.85	-1.97%				
Symmetrical Parabola	PVC	55+47.90	475.34						
		55+50.00	475.30						
	PVI	55+72.90	474.85	50	-1.97%	-2.31%	148.7	-0.0200	3234.32
	PVT	55+97.90	474.27						

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VERTICAL ALIGNMENT TABLE SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226vats01.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 85 OF 239

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	55+97.90	474.27	0.02	-2.31%				
	PVC	55+97.92	474.27						
Symmetrical Parabola	PVC	55+97.92	474.27	320	-2.31%	3.78%	52.6	2.4300	
		56+00.00	474.22						
		56+50.00	473.33						
		57+00.00	472.90						
		57+50.00	472.96						
	PVI	57+57.92	470.58						
		58+00.00	473.49						
		58+50.00	474.49						
		59+00.00	475.98						
	PVT	59+17.92	476.62						
	VLOW	57+19.25	472.87						
Linear	PVT	59+17.92	476.62	200.62	3.78%				
		59+50.00	477.83						
		60+00.00	479.72						
		60+50.00	481.61						
		61+00.00	483.50						
	PVC	61+18.54	484.20						
Symmetrical Parabola	PVC	61+18.54	484.20	200	3.78%	-1.31%	39.35	-1.2700	312.33
		61+50.00	485.26						
		62+00.00	486.43						
	PVI	62+18.54	487.98						
		62+50.00	486.97						
		63+00.00	486.87						
	PVT	63+18.54	486.67						
	VHIGH	62+67.17	487.01						
Linear	PVT	63+18.54	486.67	64.16	-1.31%				
		63+50.00	486.26						
	PVC	63+82.70	485.83						
Symmetrical Parabola	PVC	63+82.70	485.83	200	-1.31%	3.54%	41.28	1.2100	
		64+00.00	485.64						
		64+50.00	485.50						
	PVI	64+82.70	484.53						
		65+00.00	485.97						
		65+50.00	487.04						
	PVT	65+82.70	488.07						
	VLOW	64+36.59	485.48						
Linear	PVT	65+82.70	488.07	9.63	3.54%				
	PVC	65+92.33	488.41						
Symmetrical Parabola	PVC	65+92.33	488.41	240	3.54%	-0.70%	56.59	-1.2700	374.48
		66+00.00	488.67						
		66+50.00	490.16						
		67+00.00	491.19						
	PVI	67+12.33	492.66						
		67+50.00	491.79						
		68+00.00	491.95						
	PVT	68+32.33	491.81						
	VHIGH	67+92.64	491.95						
Linear	PVT	68+32.33	491.81	515.92	-0.70%				
		68+50.00	491.69						
		69+00.00	491.34						
		69+50.00	490.99						
		70+00.00	490.64						
		70+50.00	490.29						
		71+00.00	489.94						
		71+50.00	489.59						
		72+00.00	489.24						
		72+50.00	488.88						
		73+00.00	488.53						
	PVC	73+48.25	488.20						
Symmetrical Parabola	PVC	73+48.25	488.20	150	-0.70%	-2.84%	70.13	-0.4000	579.52
		73+50.00	488.18						
		74+00.00	487.64						
	PVI	74+23.25	487.67						
		74+50.00	486.74						
	PVT	74+98.25	485.54						
Linear	PVT	74+98.25	485.54	41.14	-2.84%				
		75+00.00	485.49						
	PVC	75+39.40	484.37						
Symmetrical Parabola	PVC	75+39.40	484.37	430	-2.84%	1.82%	92.3	2.5000	
		75+50.00	484.08						
		76+00.00	482.85						
		76+50.00	481.89						
		77+00.00	481.21						
		77+50.00	480.79						
	PVI	77+54.40	478.26						
		78+00.00	480.65						
		78+50.00	480.77						
		79+00.00	481.17						
		79+50.00	481.84						
	PVT	79+69.40	482.17						
	VLOW	78+01.56	480.65						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	79+69.40	482.17						
		80+00.00	482.73	31.94	1.82%				
	PVC	80+01.34	482.75						
Symmetrical Parabola	PVC	80+01.34	482.75	70	1.82%	-1.11%	23.9	-0.2600	403.51
	PVI	80+36.34	483.39						
		80+50.00	483.14						
	PVT	80+71.34	483.00						
	VHIGH	80+44.80	483.15						
Linear	PVT	80+71.34	483.00	213.02	-1.11%				
		81+00.00	482.68						
		81+50.00	482.13						
		82+00.00	481.57						
		82+50.00	481.02						
	PVC	82+84.35	480.64						
Symmetrical Parabola	PVC	82+84.35	480.64	800	-1.11%	1.26%	337.99	2.3700	
		83+00.00	480.47						
		83+50.00	479.97						
		84+00.00	479.55						
		84+50.00	479.21						
		85+00.00	478.93						
		85+50.00	478.73						
		86+00.00	478.61						
		86+50.00	478.56						
	PVI	86+84.35	476.20						
		87+00.00	478.58						
		87+50.00	478.68						
		88+00.00	478.85						
		88+50.00	479.09						
		89+00.00	479.41						
		89+50.00	479.80						
		90+00.00	480.27						
		90+50.00	480.81						
	PVT	90+84.35	481.23						
	VLOW	86+59.53	478.56						
Linear	PVT	90+84.35	481.23	97.89	1.26%				
		91+00.00	481.42						
		91+50.00	482.05						
	PVC	91+82.24	482.46						
Symmetrical Parabola	PVC	91+82.24	482.46	50	1.26%	0.42%	59.49	-0.0500	1308.94
		92+00.00	482.65						
	PVI	92+07.24	482.77						
	PVT	92+32.24	482.87						
	PVT	92+32.24	482.87						
Linear	PVT	92+32.24	482.87	80.22	0.42%				
		92+50.00	482.95						
		93+00.00	483.16						
	PVC	93+12.46	483.21						
Symmetrical Parabola	PVC	93+12.46	483.21	110	0.42%	1.18%	144.78	0.1000	
		93+50.00	483.41						
	PVI	93+67.46	483.44						
		94+00.00	483.84						
	PVT	94+22.46	484.08						
Linear	PVT	94+22.46	484.08	52.54	1.18%				
		94+50.00	484.41						
	PVC	94+75.00	484.70						
Symmetrical Parabola	PVC	94+75.00	484.70	100	1.18%	1.14%	2934.3	0.0000	31715.19
		95+00.00	485.00						
	PVI	95+25.00	485.29						
		95+50.00	485.57						
	PVRC	95+75.00	485.86						
Symmetrical Parabola	PVRC	95+75.00	485.86	100	1.14%	2.51%	73.34	0.1700	
		96+00.00	486.19						
	PVI	96+25.00	486.43						
		96+50.00	487.10						
	PVT	96+75.00	487.69						
Linear	PVT	96+75.00	487.69	134.77	2.51%				
		97+00.00	488.31						
		97+50.00	489.56						
		98+00.00	490.82						
	PVC	98+09.77	491.06						
Symmetrical Parabola	PVC	98+09.77	491.06	150	2.51%	-0.08%	58.07	-0.4800	492.76
		98+50.00	491.93						
	PVI	98+84.77	492.94						
		99+00.00	492.62						
		99+50.00	492.88						
	PVT	99+59.77	492.88						
	VHIGH	99+55.27	492.89						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	99+59.77	492.88	44.11	-0.08%				
		100+00.00	492.85						
	PVC	100+03.89	492.85						
Symmetrical Parabola	PVC	100+03.89	492.85	120	-0.08%	0.44%	232.05	0.0800	
		100+50.00	492.86						
	PVI	100+63.89	492.80						
		101+00.00	492.97						
	PVT	101+23.89	493.07						
	VLOW	100+21.87	492.84						
Linear	PVT	101+23.89	493.07	47.77	0.44%				
		101+50.00	493.18						
	PVC	101+71.66	493.28						
Symmetrical Parabola	PVC	101+71.66	493.28	100	0.44%	-0.02%	217.23	-0.0600	2394.24
		102+00.00	493.38						
	PVI	102+21.66	493.50						
		102+50.00	493.48						
	PVT	102+71.66	493.49						
	VHIGH	102+67.16	493.49						
Linear	PVT	102+71.66	493.49	86.14	-0.02%				
		103+00.00	493.48						
		103+50.00	493.47						
	PVC	103+57.80	493.47						
Symmetrical Parabola	PVC	103+57.80	493.47	120	-0.02%	4.90%	24.4	0.7400	
		104+00.00	493.82						
	PVI	104+17.80	493.46						
		104+50.00	495.19						
	PVT	104+77.80	496.39						
	VLOW	103+58.30	493.47						
Linear	PVT	104+77.80	496.39	14.2	4.90%				
	PVC	104+92.00	497.09						
Symmetrical Parabola	PVC	104+92.00	497.09	210	4.90%	-5.48%	20.25	-2.7200	209.04
		105+00.00	497.47						
	PVI	105+97.00	502.23						
		105+50.00	499.10						
		106+00.00	499.50						
		106+50.00	498.66						
		107+00.00	496.59						
	PVT	107+02.00	496.48						
	VHIGH	105+91.14	499.52						
Linear	PVT	107+02.00	496.48	10	-5.48%				
	PVC	107+12.00	495.93						
Symmetrical Parabola	PVC	107+12.00	495.93	50	-5.48%	-2.58%	17.27	0.1800	
	PVI	107+37.00	494.57						
		107+50.00	494.27						
	PVT	107+62.00	493.92						
Linear	PVT	107+62.00	493.92	96.16	-2.58%				
		108+00.00	492.94						
		108+50.00	491.65						
	PVC	108+58.16	491.44						
Symmetrical Parabola	PVC	108+58.16	491.44	140	-2.58%	5.72%	16.87	1.4500	
		109+00.00	490.88						
	PVI	109+28.16	489.63						
		109+50.00	491.57						
	PVT	109+98.16	493.63						
	VLOW	109+01.70	490.88						
Linear	PVT	109+98.16	493.63	90.9	5.72%				
		110+00.00	493.74						
		110+50.00	496.60						
	PVC	110+89.07	498.83						
Symmetrical Parabola	PVC	110+89.07	498.83	185	5.72%	0.34%	34.42	-1.2400	293.25
		111+00.00	499.44						
		111+50.00	501.78						
	PVI	111+81.57	504.12						
		112+00.00	503.39						
		112+50.00	504.27						
	PVT	112+74.07	504.44						
Linear	PVT	112+74.07	504.44	232.76	0.34%				
		113+00.00	504.52						
		113+50.00	504.69						
		114+00.00	504.87						
		114+50.00	505.04						
		115+00.00	505.21						
	PVC	115+06.82	505.23						
Symmetrical Parabola	PVC	115+06.82	505.23	150	0.34%	-1.59%	77.87	-0.3600	635.2
		115+50.00	505.26						
	PVI	115+81.82	505.49						
		116+00.00	504.99						
		116+50.00	504.40						
	PVT	116+56.82	504.30						
	VHIGH	115+33.40	505.28						

Stantec

VERTICAL ALIGNMENT TABLE SHEET #2

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226vats02.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 86 OF 239

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	116+56.82	504.30	31.44	-1.59%				
	PVC	116+88.27	503.80						
Symmetrical Parabola	PVC	116+88.27	503.80	350	-1.59%	1.00%	135.43	1.1300	
		117+00.00	503.62						
		117+50.00	502.96						
		118+00.00	502.49						
		118+50.00	502.20						
	PVI	118+63.27	501.02						
		119+00.00	502.10						
		119+50.00	502.18						
		120+00.00	502.45						
	PVT	120+38.27	502.77						
	VLOW	119+02.93	502.10						
Linear	PVT	120+38.27	502.77	46.48	1.00%				
		120+50.00	502.89						
	PVC	120+84.75	503.24						
Symmetrical Parabola	PVC	120+84.75	503.24	150	1.00%	-0.64%	91.51	-0.3100	733.36
		121+00.00	503.38						
		121+50.00	503.66						
	PVI	121+59.75	503.99						
		122+00.00	503.66						
	PVT	122+34.75	503.51						
	VHIGH	121+76.20	503.70						
Linear	PVT	122+34.75	503.51	190.25	-0.64%				
		122+50.00	503.41						
		123+00.00	503.09						
		123+50.00	502.77						
		124+00.00	502.45						
	PVC	124+25.00	502.29						
Symmetrical Parabola	PVC	124+25.00	502.29	150	-0.64%	0.62%	119.38	0.2400	
		124+50.00	502.16						
	PVI	125+00.00	501.81						
		125+50.00	502.15						
	PVT	125+75.00	502.27						
	VLOW	125+01.38	502.05						
Linear	PVT	125+75.00	502.27	25	0.62%				
	PVC	126+00.00	502.43						
Symmetrical Parabola	PVC	126+00.00	502.43	100	0.62%	-0.04%	151.7	-0.0800	1687.04
	PVI	126+50.00	502.74						
	PVT	127+00.00	502.71						
	VHIGH	126+93.55	502.72						
Linear	PVT	127+00.00	502.71	3.47	-0.04%				
	PVC	127+03.47	502.71						
Symmetrical Parabola	PVC	127+03.47	502.71	50	-0.04%	0.40%	113.18	0.0300	
	PVI	127+28.47	502.70						
		127+50.00	502.79						
	PVT	127+53.47	502.80						
	VLOW	127+08.28	502.71						
Linear	PVT	127+53.47	502.80	186.17	0.40%				
		128+00.00	502.99						
		128+50.00	503.19						
		129+00.00	503.39						
	PVC	129+39.64	503.55						
Symmetrical Parabola	PVC	129+39.64	503.55	200	0.40%	-0.92%	151.8	-0.3300	919.07
		129+50.00	503.58						
		130+00.00	503.67						
	PVI	130+39.64	503.95						
	PVT	131+39.64	503.03						
	VHIGH	130+00.26	503.67						
		130+50.00	503.59						
		131+00.00	503.34						
Linear	PVT	131+39.64	503.03	141.47	-0.92%				
		131+50.00	502.93						
		132+00.00	502.47						
		132+50.00	502.01						
	PVC	132+81.11	501.73						
Symmetrical Parabola	PVC	132+81.11	501.73	150	-0.92%	0.40%	113.9	0.2500	
		133+00.00	501.57						
		133+50.00	501.30						
	PVI	133+56.11	501.04						
		134+00.00	501.26						
	PVT	134+31.11	501.34						
	VLOW	133+85.70	501.25						
Linear	PVT	134+31.11	501.34	51.11	0.40%				
		134+50.00	501.41						
	PVC	134+82.21	501.54						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Symmetrical Parabola	PVC	134+82.21	501.54	120	0.40%	-5.09%	21.87	-0.8200	256.64
		135+00.00	501.54						
	PVI	135+42.21	501.78						
		135+50.00	500.76						
		136+00.00	498.84						
	PVT	136+02.21	498.73						
	VHIGH	134+90.93	501.56						
Linear	PVT	136+02.21	498.73	59.97	-5.09%				
		136+50.00	496.30						
	PVC	136+62.19	495.68						
Symmetrical Parabola	PVC	136+62.19	495.68	150	-5.09%	-6.42%	112.79	-0.2500	886.45
		137+00.00	493.69						
	PVI	137+37.19	491.86						
		137+50.00	490.86						
		138+00.00	487.82						
	PVT	138+12.19	487.04						
Linear	PVT	138+12.19	487.04	4.21	-6.42%				
	PVC	138+16.40	486.77						
Symmetrical Parabola	PVC	138+16.40	486.77	500	-6.42%	-0.12%	79.31	3.9400	
		138+50.00	484.69						
		139+00.00	481.85						
		139+50.00	479.32						
		140+00.00	477.11						
		140+50.00	475.22						
	PVI	140+66.40	470.73						
		141+00.00	473.64						
		141+50.00	472.38						
		142+00.00	471.43						
		142+50.00	470.79						
		143+00.00	470.47						
	PVT	143+16.40	470.44						
Linear	PVT	143+16.40	470.44	191.54	-0.12%				
		143+50.00	470.40						
		144+00.00	470.34						
		144+50.00	470.28						
		145+00.00	470.23						
	PVC	145+07.94	470.22						
Symmetrical Parabola	PVC	145+07.94	470.22	200	-0.12%	5.57%	35.17	1.4200	
		145+50.00	470.42						
		146+00.00	471.32						
	PVI	146+07.94	470.10						
		146+50.00	472.92						
		147+00.00	475.24						
	PVT	147+07.94	475.67						
	VLOW	145+11.98	470.22						
Linear	PVT	147+07.94	475.67	13.22	5.57%				
	PVC	147+21.16	476.41						
Symmetrical Parabola	PVC	147+21.16	476.41	100	5.57%	0.16%	18.48	-0.6800	249.38
		147+50.00	477.79						
	PVI	147+71.16	479.20						
		148+00.00	479.12						
	PVT	148+21.16	479.28						
Linear	PVT	148+21.16	479.28	235.54	0.16%				
		148+50.00	479.32						
		149+00.00	479.40						
		149+50.00	479.48						
		150+00.00	479.56						
		150+50.00	479.64						
	PVC	150+56.69	479.65						
Symmetrical Parabola	PVC	150+56.69	479.65	250	0.16%	2.55%	104.59	0.7500	
		151+00.00	479.81						
		151+50.00	480.22						
	PVI	151+81.69	479.85						
		152+00.00	480.86						
		152+50.00	481.75						
		153+00.00	482.87						
	PVT	153+06.69	483.04						
Linear	PVT	153+06.69	483.04	28.62	2.55%				
	PVC	153+35.31	483.77						
Symmetrical Parabola	PVC	153+35.31	483.77	80	2.55%	-3.65%	12.9	-0.6200	214.03
		153+50.00	484.06						
	PVI	153+75.31	484.79						
		154+00.00	483.80						
	PVT	154+15.31	483.33						
	VHIGH	153+68.21	484.19						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	154+15.31	483.33	62.11	-3.65%				
		154+50.00	482.06						
	PVC	154+77.42	481.06						
Symmetrical Parabola	PVC	154+77.42	481.06	300	-3.65%	-0.57%	97.49	1.1500	
		155+00.00	480.26						
		155+50.00	478.68						
		156+00.00	477.36						
	PVI	156+27.42	475.59						
		156+50.00	476.29						
		157+00.00	475.48						
		157+50.00	474.92						
	PVT	157+77.42	474.73						
Linear	PVT	157+77.42	474.73	147.94	-0.57%				
		158+00.00	474.60						
		158+50.00	474.31						
		159+00.00	474.02						
	PVC	159+25.36	473.88						
Symmetrical Parabola	PVC	159+25.36	473.88	330	-0.57%	3.28%	85.73	1.5900	
		159+50.00	473.77						
		160+00.00	473.77						
		160+50.00	474.07						
	PVI	160+90.36	472.93						
		161+00.00	474.65						
		161+50.00	475.53						
		162+00.00	476.70						
		162+50.00	478.16						
	PVT	162+55.36	478.33						
	VLOW	159+74.55	473.74						
Linear	PVT	162+55.36	478.33	21.93	3.28%				
	PVC	162+77.29	479.05						
Symmetrical Parabola	PVC	162+77.29	479.05	100	3.28%	0.23%	32.84	-0.3800	404.34
		163+00.00	479.72						
	PVI	163+27.29	480.69						
		163+50.00	480.63						
	PVT	163+77.29	480.81						
Linear	PVT	163+77.29	480.81	233.77	0.23%				
		164+00.00	480.86						
		164+50.00	480.97						
		165+00.00	481.09						
		165+50.00	481.20						
		166+00.00	481.32						
	PVC	166+11.06	481.34						
Symmetrical Parabola	PVC	166+11.06	481.34	100	0.23%	-0.84%	93.49	-0.1300	1058.85
		166+50.00	481.35						
	PVI	166+61.06	481.46						
		167+00.00	481.12						
	PVT	167+11.06	481.04						
	VHIGH	166+32.56	481.37						
Linear	PVT	167+11.06	481.04	37.78	-0.84%				
	PVC	167+48.84	480.72						
Symmetrical Parabola	PVC	167+48.84	480.72	100	-0.84%	1.83%	37.51	0.3300	
		167+50.00	480.71						
	PVI	167+98.84	480.30						
		168+00.00	480.64						
	PVT	168+48.84	481.21						
		168+50.00	481.24						
	VLOW	167+80.34	480.59						
Linear	PVT	168+48.84	481.21	67.8	1.83%				
		169+00.00	482.15						
	PVC	169+16.65	482.45						
Symmetrical Parabola	PVC	169+16.65	482.45	240	1.83%	-2.94%	50.4	-1.4300	346.6
		169+50.00	482.95						
		170+00.00	483.29						
	PVI	170+36.65	484.64						
		170+50.00	483.12						
		171+00.00	482.47						
		171+50.00	481.31						
	PVT	171+56.65	481.12						
	VHIGH	170+08.68	483.29						
Linear	PVT	171+56.65	481.12	45.64	-2.94%				
		172+00.00	479.85						
	PVC	172+02.29	479.78						
Symmetrical Parabola	PVC	172+02.29	479.78	150	-2.94%	-1.68%	119.45	0.2400	
		172+50.00	478.48						
	PVI	172+77.29	477.58						
		173+00.00	477.31						
		173+50.00	476.36						
	PVT	173+52.29	476.32						
Linear	PVT	173+52.29	476.32	15.82	-1.68%				
	PVC	173+68.11	476.05						

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VERTICAL ALIGNMENT TABLE SHEET #3

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226vats03.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 87 OF 239

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
	PVC	173+68.11	476.05						
		174+00.00	475.50						
Symmetrical Parabola	PVI	174+43.11	474.79	150	-1.68%	-2.06%	392.29	-0.0700	2897.23
		174+50.00	474.59						
		175+00.00	473.61						
	PVT	175+18.11	473.25						
	PVT	175+18.11	473.25						
		175+50.00	472.59						
		176+00.00	471.56						
		176+50.00	470.53						
Linear		177+00.00	469.49	427.02	-2.06%				
		177+50.00	468.46						
		178+00.00	467.43						
		178+50.00	466.40						
		179+00.00	465.37						
	PVC	179+45.13	464.44						
	PVC	179+45.13	464.44						
		179+50.00	464.34						
		180+00.00	463.36						
		180+50.00	462.48						
		181+00.00	461.70						
		181+50.00	461.01						
		182+00.00	460.42						
Symmetrical Parabola	PVI	182+20.13	458.77	550	-2.06%	0.03%	263.04	1.4400	
		182+50.00	459.92						
		183+00.00	459.51						
		183+50.00	459.20						
		184+00.00	458.99						
		184+50.00	458.87						
	PVT	184+95.13	458.84						
	VLOW	184+87.66	458.84						
	PVT	184+95.13	458.84						
Linear		185+00.00	458.85	65.15	0.03%				
		185+50.00	458.86						
	PVC	185+60.27	458.86						
	PVC	185+60.27	458.86						
		186+00.00	458.93						
		186+50.00	459.20						
Symmetrical Parabola	PVI	186+70.27	458.89	220	0.03%	1.74%	128.87	0.4700	
		187+00.00	459.66						
		187+50.00	460.31						
	PVT	187+80.27	460.80						
Linear	PVT	187+80.27	460.80	2.73	1.74%				
	PVC	187+83.00	460.85						
	PVC	187+83.00	460.85						
		188+00.00	461.14						
Symmetrical Parabola	PVI	188+33.00	461.72	100	1.74%	1.09%	155.87	-0.0800	1732.02
		188+50.00	461.87						
	PVT	188+83.00	462.26						
	PVT	188+83.00	462.26						
		189+00.00	462.45						
Linear		189+50.00	463.00	128.09	1.09%				
		190+00.00	463.54						
	PVC	190+11.09	463.67						
	PVC	190+11.09	463.67						
		190+50.00	464.06						
		191+00.00	464.48						
Symmetrical Parabola	PVI	191+01.09	464.65	180	1.09%	0.35%	242.43	-0.1700	1543.44
		191+50.00	464.79						
	PVT	191+91.09	464.97						
Linear	PVT	191+91.09	464.97	6.2	0.35%				
	PVC	191+97.29	464.99						
	PVC	191+97.29	464.99						
		192+00.00	465.00						
		192+50.00	465.22						
Symmetrical Parabola	PVI	192+97.29	465.34	200	0.35%	0.96%	327.69	0.1500	
		193+00.00	465.51						
		193+50.00	465.88						
	PVT	193+97.29	466.30						
	PVT	193+97.29	466.30						
		194+00.00	466.33						
		194+50.00	466.81						
		195+00.00	467.29						
Linear		195+50.00	467.77	325.8	0.96%				
		196+00.00	468.25						
		196+50.00	468.73						
		197+00.00	469.21						
	PVC	197+23.09	469.44						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
	PVC	197+23.09	469.44						
		197+50.00	469.63						
		198+00.00	469.64						
Symmetrical Parabola	PVI	198+23.09	470.40						
		198+50.00	469.21	200	0.96%	-2.63%	55.69	-0.9000	400.47
		199+00.00	468.33						
	PVT	199+23.09	467.77						
		199+50.00	467.06						
	VHIGH	197+76.64	469.69						
Linear	PVT	199+23.09	467.77	64.45	-2.63%				
	PVC	199+87.53	466.07						
	PVC	199+87.53	466.07						
		200+00.00	465.75						
Symmetrical Parabola		200+50.00	464.53						
	PVI	200+87.53	463.44	200	-2.63%	-1.59%	191.83	0.2600	
		201+00.00	463.44						
		201+50.00	462.49						
	PVT	201+87.53	461.85						
	PVT	201+87.53	461.85						
		202+00.00	461.66						
		202+50.00	460.86						
Linear		203+00.00	460.07	207.47	-1.59%				
		203+50.00	459.28						
	PVC	203+95.00	458.56						
	PVC	203+95.00	458.56						
		204+00.00	458.48						
		204+50.00	457.80						
Symmetrical Parabola		205+00.00	457.32						
	PVI	205+20.00	456.58	250	-1.59%	0.33%	130.45	0.6000	
		205+50.00	457.02						
		206+00.00	456.92						
	PVRC	206+45.00	456.99						
	VLOW	206+02.06	456.92						
	PVRC	206+45.00	456.99						
		206+50.00	457.00						
Symmetrical Parabola	PVI	206+80.00	457.10	70	0.33%	-0.09%	166.77	-0.0400	2606
		207+00.00	457.08						
	PVT	207+15.00	457.07						
	VHIGH	206+99.89	457.08						
	PVT	207+15.00	457.07						
		207+50.00	457.04						
		208+00.00	457.00						
		208+50.00	456.95						
		209+00.00	456.91						
Linear		209+50.00	456.86	546.41	-0.09%				
		210+00.00	456.81						
		210+50.00	456.77						
		211+00.00	456.72						
		211+50.00	456.68						
		212+00.00	456.63						
		212+50.00	456.59						
	PVC	212+61.41	456.58						
	PVC	212+61.41	456.58						
		213+00.00	456.77						
		213+50.00	457.68						
Symmetrical Parabola	PVI	213+91.41	456.46						
		214+00.00	459.34	260	-0.09%	7.74%	33.2	2.5500	
		214+50.00	461.76						
		215+00.00	464.93						
	PVT	215+21.41	466.52						
	VLOW	212+64.42	456.58						
Linear	PVT	215+21.41	466.52	3.59	7.74%				
	PVC	215+25.00	466.80						
	PVC	215+25.00	466.80						
		215+50.00	468.55						
Symmetrical Parabola	PVI	215+60.00	469.51	70	7.74%	3.65%	17.11	-0.3600	298.81
	PVT	215+95.00	470.79						
	PVT	215+95.00	470.79						
		216+00.00	470.97						
		216+50.00	472.79						
		217+00.00	474.62						
Linear		217+50.00	476.44	286.88	3.65%				
		218+00.00	478.27						
		218+50.00	480.09						
	PVC	218+81.88	481.26						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
	PVC	218+81.88	481.26						
		219+00.00	481.87						
		219+50.00	482.99						
Symmetrical Parabola	PVI	219+91.88	485.27						
		220+00.00	483.31	220	3.65%	-3.46%	30.94	-1.9600	261.78
		220+50.00	482.83						
		221+00.00	481.53						
	PVT	221+01.88	481.47						
	VHIGH	219+94.81	483.32						
	PVT	221+01.88	481.47						
Linear		221+50.00	479.80	97.58	-3.46%				
	PVC	221+99.45	478.09						
	PVC	221+99.45	478.09						
		222+00.00	478.07						
		222+50.00	476.46						
		223+00.00	475.09						
		223+50.00	473.96						
Symmetrical Parabola		224+00.00	473.07						
	PVI	224+24.45	470.31	450	-3.46%	0.83%	105	2.4100	
		224+50.00	472.41						
		225+00.00	471.99						
		225+50.00	471.81						
		226+00.00	471.87						
	PVT	226+49.45	472.16						
	VLOW	225+62.75	471.81						
	PVT	226+49.45	472.16						
Linear		226+50.00	472.17	60.88	0.83%				
		227+00.00	472.58						
	PVC	227+10.33	472.67						
	PVC	227+10.33	472.67						
		227+50.00	472.75						
Symmetrical Parabola	PVI	227+85.33	473.29						
		228+00.00	472.14	150	0.83%	-3.90%	31.75	-0.8900	303.43
		228+50.00	470.75						
	PVT	228+60.33	470.36						
	VHIGH	227+36.55	472.77						
	PVT	228+60.33	470.36						
Linear	PVC	228+77.13	469.71	16.79	-3.90%				
	PVC	228+77.13	469.71						
		229+00.00	468.86						
Symmetrical Parabola	PVI	229+27.13	467.76	100	-3.90%	-2.35%	64.66	0.1900	
		229+50.00	467.28						
	PVT	229+77.13	466.58						
	PVT	229+77.13	466.58						
		230+00.00	466.04						
Linear		230+50.00	464.87	143.57	-2.35%				
		231+00.00	463.69						
	PVC	231+20.69	463.21						
	PVC	231+20.69	463.21						
Symmetrical Parabola	PVI	231+45.69	462.62	50	-2.35%	-3.23%	57.14	-0.0500	1258.29
		231+50.00	462.44						
	PVT	231+70.69	461.81						
	PVT	231+70.69	461.81						
Linear	PVC	231+86.09	461.31	15.4	-3.23%				
	PVC	231+86.09	461.31						
		232+00.00	460.88						
		0+50.00	458.70	**Essex 232+37.28 BK = Westford 0+00.00 AHD**					
Symmetrical Parabola	PVI	0+99.09	456.47						
		1+00.00	457.89	300	-3.23%	0.59%	78.69	1.4300	
		1+50.00	457.40						
		2+00.00	457.22						
	PVT	2+49.09	457.35						
	VLOW	2+03.01	457.22						

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VERTICAL ALIGNMENT TABLE SHEET #4

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226vats04.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 88 OF 239

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	2+49.09	457.35	1153.8	0.59%				
		2+50.00	457.36						
		3+00.00	457.65						
		3+50.00	457.94						
		4+00.00	458.24						
		4+50.00	458.53						
		5+00.00	458.82						
		5+50.00	459.11						
		6+00.00	459.41						
		6+50.00	459.70						
		7+00.00	459.99						
		7+50.00	460.29						
		8+00.00	460.58						
		8+50.00	460.87						
		9+00.00	461.16						
		9+50.00	461.46						
		10+00.00	461.75						
		10+50.00	462.04						
		11+00.00	462.33						
		11+50.00	462.63						
		12+00.00	462.92						
		12+50.00	463.21						
		13+00.00	463.51						
		13+50.00	463.80						
		14+00.00	464.09						
	PVC	14+02.85	464.11						
Symmetrical Parabola	PVC	14+02.85	464.11	150	0.59%	1.40%	184.18	0.1500	
		14+50.00	464.44						
	PVI	14+77.85	464.55						
		15+00.00	464.93						
		15+50.00	465.56						
	PVT	15+52.85	465.60						
Linear	PVT	15+52.85	465.60	83.34	1.40%				
		16+00.00	466.26						
	PVC	16+36.19	466.76						
Symmetrical Parabola	PVC	16+36.19	466.76	250	1.40%	7.78%	39.18	1.9900	
		16+50.00	466.98						
		17+00.00	468.18						
		17+50.00	470.01						
	PVI	17+61.19	468.51						
		18+00.00	472.48						
		18+50.00	475.59						
	PVT	18+86.19	478.24						
Linear	PVT	18+86.19	478.24	37.84	7.78%				
		19+00.00	479.32						
	PVC	19+24.03	481.18						
Symmetrical Parabola	PVC	19+24.03	481.18	247	7.78%	-2.91%	23.1	-3.3000	223.27
		19+50.00	483.06						
		20+00.00	485.85						
	PVI	20+47.53	490.79						
		20+50.00	487.55						
		21+00.00	488.17						
		21+50.00	487.71						
	PVT	21+71.03	487.20						
	VHIGH	21+03.75	488.18						
Linear	PVT	21+71.03	487.20	315.75	-2.91%				
		22+00.00	486.35						
		22+50.00	484.90						
		23+00.00	483.44						
		23+50.00	481.98						
		24+00.00	480.53						
		24+50.00	479.07						
	PVC	24+86.77	478.00						
Symmetrical Parabola	PVC	24+86.77	478.00	390	-2.91%	3.91%	57.15	3.3300	
		25+00.00	477.63						
		25+50.00	476.51						
		26+00.00	475.82						
		26+50.00	475.58						
	PVI	26+81.77	472.32						
		27+00.00	475.77						
		27+50.00	476.40						
		28+00.00	477.46						
		28+50.00	478.96						
	PVT	28+76.77	479.95						
	VLOW	26+53.25	475.58						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	28+76.77	479.95	301.33	3.91%				
		29+00.00	480.86						
		29+50.00	482.81						
		30+00.00	484.77						
		30+50.00	486.72						
		31+00.00	488.68						
		31+50.00	490.63						
	PVC	31+78.11	491.73						
Symmetrical Parabola	PVC	31+78.11	491.73	100	3.91%	-4.85%	11.42	-1.0900	173.21
		32+00.00	492.38						
	PVI	32+28.11	493.69						
		32+50.00	492.28						
	PVT	32+78.11	491.26						
	VHIGH	32+22.76	492.61						
Linear	PVT	32+78.11	491.26	139.05	-4.85%				
		33+00.00	490.20						
		33+50.00	487.78						
		34+00.00	485.35						
	PVC	34+17.16	484.52						
Symmetrical Parabola	PVC	34+17.16	484.52	100	-4.85%	-3.67%	84.57	0.1500	
		34+50.00	482.99						
	PVI	34+67.16	482.10						
		35+00.00	480.91						
	PVT	35+17.16	480.27						
Linear	PVT	35+17.16	480.27	74.48	-3.67%				
		35+50.00	479.06						
	PVC	35+91.64	477.54						
Symmetrical Parabola	PVC	35+91.64	477.54	150	-3.67%	-5.62%	76.64	-0.3700	626.4
		36+00.00	477.22						
		36+50.00	475.17						
	PVI	36+66.64	474.79						
		37+00.00	472.80						
	PVT	37+41.64	470.57						
Linear	PVT	37+41.64	470.57	18.36	-5.62%				
		37+50.00	470.10						
	PVC	37+60.00	469.54						
Symmetrical Parabola	PVC	37+60.00	469.54	250	-5.62%	-0.88%	52.69	1.4800	
		38+00.00	467.44						
		38+50.00	465.25						
	PVI	38+85.00	462.51						
		39+00.00	463.53						
		39+50.00	462.28						
		40+00.00	461.51						
	PVT	40+10.00	461.41						
Linear	PVT	40+10.00	461.41	103	-0.88%				
		40+50.00	461.06						
		41+00.00	460.62						
	PVC	41+13.00	460.51						
Symmetrical Parabola	PVC	41+13.00	460.51	250	-0.88%	2.06%	85.13	0.9200	
		41+50.00	460.26						
		42+00.00	460.19						
	PVI	42+38.00	459.41						
		42+50.00	460.41						
		43+00.00	460.92						
		43+50.00	461.73						
	PVT	43+63.00	461.98						
	VLOW	41+87.75	460.18						
Linear	PVT	43+63.00	461.98	5.34	2.06%				
	PVC	43+68.34	462.09						
Symmetrical Parabola	PVC	43+68.34	462.09	100	2.06%	0.80%	79.42	-0.1600	907.11
		44+00.00	462.68						
	PVI	44+18.34	463.12						
		44+50.00	463.35						
	PVT	44+68.34	463.52						
Linear	PVT	44+68.34	463.52	35.57	0.80%				
		45+00.00	463.78						
	PVC	45+03.91	463.81						
Symmetrical Parabola	PVC	45+03.91	463.81	100	0.80%	3.00%	45.42	0.2800	
		45+50.00	464.41						
	PVI	45+53.91	464.21						
		46+00.00	465.59						
	PVT	46+03.91	465.71						
Linear	PVT	46+03.91	465.71	26.05	3.00%				
	PVC	46+29.96	466.49						
Symmetrical Parabola	PVC	46+29.96	466.49	150	3.00%	-0.80%	39.48	-0.7100	359.05
		46+50.00	467.04						
		47+00.00	467.97						
	PVI	47+04.96	468.74						
		47+50.00	468.27						
	PVT	47+79.96	468.14						
	VHIGH	47+48.45	468.27						

Element	Point Type	Station	Elevation	Length	Entrance Grade	Exit Grade	K	Middle Ordinate	SSD/HSD
Linear	PVT	47+79.96	468.14	68.04	-0.80%				
		48+00.00	467.98						
	PVC	48+48.00	467.60						
Symmetrical Parabola	PVC	48+48.00	467.60	150	-0.80%	3.16%	37.94	0.7400	
		48+50.00	467.58						
		49+00.00	467.54						
	PVI	49+23.00	467.00						
		49+50.00	468.15						
	PVT	49+98.00	469.37						
	VLOW	48+78.28	467.48						
Linear	PVT	49+98.00	469.37	282	3.16%				
		50+00.00	469.43						
		50+50.00	471.01						
		51+00.00	472.58						
		51+50.00	474.16						
		52+00.00	475.74						
		52+50.00	477.32						
	PVC	52+80.00	478.27						
Symmetrical Parabola	PVC	52+80.00	478.27	100	3.16%	2.61%	183.44	-0.0700	2029.59
		53+00.00	478.89						
	PVI	53+30.00	479.84						
		53+50.00	480.34						
	PVT	53+80.00	481.15						
Linear	PVT	53+80.00	481.15	6.37	2.61%				
	PVC	53+86.37	481.32						
Symmetrical Parabola	PVC	53+86.37	481.32	250	2.61%	9.63%	35.6	2.1900	
		54+00.00	481.70						
		54+50.00	483.54						
		55+00.00	486.09						
	PVI	55+11.37	484.58						
		55+50.00	489.35						
		56+00.00	493.30						
	PVT	56+36.37	496.62						
Linear	PVT	56+36.37	496.62	40.63	9.63%				
		56+50.00	497.93						
	PVC	56+77.00	500.53						
Symmetrical Parabola	PVC	56+77.00	500.53	150	9.63%	2.90%	22.29	-1.2600	235.35
		57+00.00	502.63						
		57+50.00	506.37						
	PVI	57+52.00	507.76						
		58+00.00	508.99						
	PVT	58+27.00	509.94						
	PVT	58+27.00	509.94						
Linear		58+50.00	510.60	485.41	2.90%				
		59+00.00	512.05						
		59+50.00	513.51						
		60+00.00	514.96						
		60+50.00	516.41						
		61+00.00	517.86						
		61+50.00	519.31						
		62+00.00	520.76						
		62+50.00	522.22						
		63+00.00	523.67						
	PVC	63+12.42	524.03						
Symmetrical Parabola	PVC	63+12.42	524.03	250	2.90%	1.38%	164.28	-0.4800	834.14
		63+50.00	525.08						
		64+00.00	526.34						
	PVI	64+37.42	527.66						
		64+50.00	527.45						
		65+00.00	528.40						
		65+50.00	529.21						
	PVT	65+62.42	529.38						
Linear	PVT	65+62.42	529.38	70.58	1.38%				
		66+00.00	529.90						
	PVC	66+33.00	530.36						
Symmetrical Parabola	PVC	66+33.00	530.36	100	1.38%	2.51%	88.68	0.1400	
		66+50.00	530.61						
	PVI	66+83.00	531.05						
		67+00.00	531.54						
	PVT	67+33.00	532.30						
Linear	PVT	67+33.00	532.30	21.98	2.51%				
		67+50.00	532.73						
	PVC	67+54.98	532.85						
Symmetrical Parabola	PVC	67+54.98	532.85	105	2.51%	4.86%	44.57	0.3100	
		68+00.00	534.21						
	PVI	68+07.48	534.17						
		68+50.00	536.25						
	PVT	68+59.98	536.73						
Linear	PVT	68+59.98	536.73	25.5	4.86%				
	POE	68+85.48	537.97						

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VERTICAL ALIGNMENT TABLE SHEET #5

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226vats05.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 89 OF 239

BORING NO.	DATE DRILLED	MILE MARKER	OFFSET (FT)	DEPTH (FT)	SAMPLE TYPE	FIELD DESCRIPTION: SOIL TYPE, COLOR, MOISTURE	LABORATORY RESULTS: % MOISTURE	AASHTO CLASS.	SOIL DES.	% GRAVEL	% SAND	% FINES	LIQUID LIMIT	PLASTIC LIMIT
B-101	7/14/2011	MM 0.0	7.3	0.0 -0.7		Asphalt Pavement								
				0.7 - 5.0	Auger	SILT, S. f.m.c. Sand, tr. f. gravel, l. brn, moist	15.5	A-4	ML	1.0	28.3	70.7		
						End of Boring @ 5.0 feet								
B-102	7/14/2011	MM 0.2	6.1	0.0 - 0.3		Asphalt Pavement								
				0.3 - 0.7		Concrete								
				0.7 - 0.8		Subbase								
				0.8 - 5.0	Auger	f.m.c. SAND, S. Silt, S. f.c. Gravel, brn, moist	8.4	A-2-4	SM	31.9	38.6	29.5		
						End of Boring @ 5.0 feet								
B-103	7/14/2011	MM 0.4	6.7	0.0 - 0.7		Asphalt Pavement								
				0.7 - 1.0		Concrete								
				1.0 - 2.5		f.m.c. SAND, S. f.c. Gravel, l. brn, moist		A-1-b	SP					
				2.5 - 5.0	Auger	f.m.c. SAND, lit. silt, tr. F. gravel, brn, moist/wet		A-2-4	SM					
						End of Boring @ 5.0 feet								
B-104	7/14/2011	MM 0.6	5.9	0.0 - 0.2		Asphalt Pavement (Layer 1)								
				0.2 - 0.8		Asphalt Pavement (Layer 2)								
				0.8 - 1.0		Subbase								
				1.0 - 4.0		f.m.c. SAND, S. f.c. Gravel, lit. silt, l. brn, moist		A-1-b	SM					
				4.0 - 5.0	Auger	f.m.c. SAND, S. Silt, S. f.c. Gravel, brn, wet	7.2	A-1-b	SM	37.4	40.8	21.8		
						End of Boring @ 5.0 feet								
B-105	7/14/2011	MM 0.8	7.0	0.0 - 0.2		Asphalt Pavement (Layer 1)								
				0.2 - 0.9		Asphalt Pavement (Layer 2)								
				0.9 - 1.1		Subbase								
				1.1 - 4.0		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn, moist		A-2-4	SM					
				4.0 - 5.0	Auger	SILT, lit. f.m.c. sand, brn/gray, moist/wet		A-4	ML					
						End of Boring @ 5.0 feet								
B-106	7/14/2011	MM 1.0	7.4	0.0 - 1.0		Asphalt Pavement								
				1.0 - 5.0	Auger	f.m.c. SAND, S. Silt, S. f.c. Gravel, brn, moist	8.5	A-2-4	SM	27.1	50.6	22.3		
						End of Boring @ 5.0 feet								

BORING NO.	DATE DRILLED	MILE MARKER	OFFSET (FT)	DEPTH (FT)	SAMPLE TYPE	FIELD DESCRIPTION: SOIL TYPE, COLOR, MOISTURE	LABORATORY RESULTS: % MOISTURE	AASHTO CLASS.	SOIL DES.	% GRAVEL	% SAND	% FINES	LIQUID LIMIT	PLASTIC LIMIT
B-114	7/14/2011	MM 2.6	7.2	0.0 - 0.7		Asphalt Pavement								
				0.7 - 0.9		Old Asphalt Pavement								
				0.9 - 1.1		f.m.c. SAND, S. f.c. Gravel, l. brn, moist (Subbase)		A-1-b	SP					
				1.1 - 5.0	Auger	Silty CLAY, tr. f.m.c. sand, gray/brn, moist	27.6	A-7-6	CL	0.0	2.9	97.1	43	22
						End of Boring @ 5.0 feet								
B-115	7/14/2011	MM 2.8	7	0.0 - 0.5		Asphalt Pavement								
				0.5 - 0.7		Old Asphalt/Subbase								
				0.7 - 2.0		f.m.c. SAND, S. Silt, lit. f.c. gravel, l. brn, moist								
				2.0 - 5.0	Auger	f.m.c. SAND, S. Silt, S. f.c. Gravel, l. gray, moist	9.6	A-2-4	SM	24.4	46.5	29.1		
						End of Boring @ 5.0 feet								
B-116	7/14/2011	MM 3.0	5.9	0.0 - 0.8		Asphalt Pavement								
				0.8 - 2.5		f.m.c. SAND, S. Silt, lit. f.c. gravel, l. brn, moist		A-2-4	SM					
				2.5 - 5.0	Auger	Silty CLAY, tr. f.m.c. sand, brn, moist		A-4	CL					
						End of Boring @ 5.0 feet								
B-117	7/14/2011	MM 3.2	4.9	0.0 - 0.9		Asphalt Pavement (mult. Layers)								
				0.9 - 5.0	Auger	f.m.c. SAND, lit. silt, lit. f.c. gravel, gray, wet		A-2-4	SM					
						End of Boring @ 5.0 feet								
						(water @ 1.7 feet)								
B-118	7/14/2011	MM 3.4	7.2	0.0 - 1.0		Asphalt Pavement								
				1.0 - 1.2		Subbase								
				1.2 - 3.0		Silty CLAY, lit. f.m.c. sand, lit. f.c. gravel, brn, moist		A-4	CL					
				3.0 - 5.0	Auger	Silty CLAY, lit. f.m.c. sand, lit. f.c. gravel, gray, moist	17.8	A-4	CL	15.6	16.1	68.3	30	21
						End of Boring @ 5.0 feet								
B-119	7/14/2011	MM 3.6	9.1	0.0 - 1.2		Asphalt Pavement								
				1.2 - 2.5		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn, moist		A-2-4	SM					
				2.5 - 5.0	Auger	Cl. SILT, lit. f.m.c. sand, gray/brn, moist	29.6	A-4	ML	2.0	21.7	76.3		
						End of Boring @ 5.0 feet								

BORING NO.	DATE DRILLED	MILE MARKER	OFFSET (FT)	DEPTH (FT)	SAMPLE TYPE	FIELD DESCRIPTION: SOIL TYPE, COLOR, MOISTURE	LABORATORY RESULTS: % MOISTURE	AASHTO CLASS.	SOIL DES.	% GRAVEL	% SAND	% FINES	LIQUID LIMIT	PLASTIC LIMIT
B-107	7/14/2011	MM 1.2	7.1	0.0 - 0.6		Asphalt Pavement								
				0.6 - 0.7		Subbase								
				0.7 - 5.0	Auger	f.m. SAND, lit. f.c. gravel, tr. silt, tr. c. sand, brn, moist	3.6	A-3	SP	12.5	81.9	5.9		
						End of Boring @ 5.0 feet								
B-108	7/14/2011	MM 1.4	8.4	0.0 - 0.6		Asphalt Pavement								
				0.6 - 0.8		Subbase/ Very Poor Grade Asphalt								
				0.8 - 5.0	Auger	f.m. SAND, tr. silt, tr. c. sand, tr. f. gravel, brn, moist/wet		A-3	SP					
						End of Boring @ 5.0 feet								
B-109	7/14/2011	MM 1.6	5.3	0.0 - 1.2		Asphalt Pavement								
				1.2 - 3.0		SILT, S. f.m.c. Sand, lit. f.c. gravel, gray, moist								
				3.0 - 5.0	Auger	Cl. SILT, lit. f.m.c. sand, tr. f. gravel, tr. org., gray, moist/wet	26.1	A-4	ML	2.8	16.8	80.4		
						End of Boring @ 5.0 feet								
B-110	7/14/2011	MM 1.8	3.6	0.0 - 0.9		Asphalt Pavement								
				0.9 - 3.5		Cl. SILT, S. f.m.c. Sand, lit. f.c. gravel, gray, moist		A-4	ML					
				3.5 - 5.0	Auger	Cl. SILT, S. f.m.c. Sand, gray, wet		A-4	ML					
						End of Boring @ 5.0 feet								
B-111	7/14/2011	MM 2.0	4.9	0.0 - 0.9		Asphalt Pavement								
				0.9 - 1.2		Subbase/Poor Grade Asphalt								
				1.2 - 5.0	Auger	SILT and f. SAND, lit. f.c. gravel, tr. clay, tr. m.c. sand, gray, moist	12.3	A-4	SM	12.2	45.3	42.5		
						End of Boring @ 5.0 feet								
B-112	7/14/2011	MM 2.2	6.2	0.0 - 0.5		Asphalt Pavement								
				0.5 - 1.4		Asphalt Pavement								
				1.4 - 5.0	Auger	SILT and f. SAND, tr. m.c. sand, tr. f.c. gravel, brn, moist	19.6	A-4	ML	1.2	38.1	60.6		
						End of Boring @ 5.0 feet								
B-113	7/14/2011	MM 2.4	7.2	0.0 - 1.0		Asphalt Pavement								
				1.0 - 5.0	Auger	Silty CLAY, tr. f.m.c. sand, tr. f.c. gravel, gray/brn, moist								
						End of Boring @ 5.0 feet								

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SOIL BORING DATA SHEET #1

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226pcds01.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 90 OF 239

BORING NO.	DATE DRILLED	MILE MARKER	OFFSET (FT)	DEPTH (FT)	SAMPLE TYPE	FIELD DESCRIPTION	LABORATORY RESULTS							
						SOIL TYPE, COLOR, MOISTURE	% MOISTURE	AASHTO CLASS.	SOIL DES.	% GRAVEL	% SAND	% FINES	LIQUID LIMIT	PLASTIC LIMIT
B-120	7/14/2011	MM 3.8	5.3	0.0 - 0.7		Asphalt Pavement								
				0.7 - 0.8		Subbase								
				0.8 - 2.5		SILT, S. f.m.c. Sand, lit. f.c. gravel, brn, moist		A-4	ML					
				2.5 - 5.0	Auger	Cl. SILT, lit. f.m.c. sand, tr. f. gravel, brn/gray, moist		A-4	ML					
						End of Boring @ 5.0 feet								
B-121	7/14/2011	MM 4.0	5.3	0.0 - 0.9		Asphalt Pavement								
				0.9 - 1.1		Subbase								
				1.1 - 3.0		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn/gray, moist		A-2-4	SM					
				3.0 - 5.0	Auger	f.m.c. SAND, S. f. Gravel, lit. silt, brn/gray, moist	7.8	A-1-b	SM	30.0	52.0	18.0		
						End of Boring @ 5.0 feet								
B-122	7/14/2011	MM 4.2	6.8	0.0 - 0.8		Asphalt Pavement								
				0.8 - 0.9		Subbase								
				0.9 - 5.0	Auger	Silty CLAY, tr. f.m.c sand, tr. gravel, brn/gray, moist	28.1	A-7-6	CL	1.1	5.1	93.8	47	23
						End of Boring @ 5.0 feet								
B-123	7/14/2011	MM 4.4	5.4	0.0 - 0.8		Asphalt Pavement								
				0.8 - 5.0	Auger	f.m.c. SAND, S. Silt, lit. f.c. gravel, brn/gray, moist		A-2-4	SM					
						End of Boring @ 5.0 feet								
B-124	7/14/2011	MM 0.1	8.4	0.0 - 1.2		Asphalt Pavement								
				1.2 - 1.5		Subbase/Old Asphalt Pavement								
				1.5 - 2.5		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn, moist								
				2.5 - 5.0	Auger	f.m.c. SAND, S. f.c. Gravel, lit. silt, gray, moist	9.8	A-1-b	SM	32.0	49.8	18.2		
						End of Boring @ 5.0 feet								
B-125	7/14/2011	MM 0.3	5.1	0.0 - 0.8		Asphalt Pavement								
				0.8 - 1.0		Subbase								
				1.0 - 2.0		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn, moist		A-2-4	SM					
				2.0 - 5.0	Auger	Cl. SILT, tr. f.m.c. sand, gray, moist		A-4	ML					
						End of Boring @ 5.0 feet								
B-126	7/14/2011	MM 0.5	5.4	0.0 - 0.8		Asphalt Pavement								
				0.8 - 1.0		Subbase								
				1.0 - 3.0		f.m.c. SAND, S. cl. Silt, lit. f.c. gravel, brn/gray, moist		A-2-4	SM					
				3.0 - 5.0	Auger	f.m.c. SAND, S. Silt, S. f.c. Gravel, gray, moist	7.4	A-1-b	SM	32.5	46.9	20.6		
						End of Boring @ 5.0 feet								

BORING NO.	DATE DRILLED	MILE MARKER	OFFSET (FT)	DEPTH (FT)	SAMPLE TYPE	FIELD DESCRIPTION	LABORATORY RESULTS							
						SOIL TYPE, COLOR, MOISTURE	% MOISTURE	AASHTO CLASS.	SOIL DES.	% GRAVEL	% SAND	% FINES	LIQUID LIMIT	PLASTIC LIMIT
B-127	7/14/2011	MM 0.7	6.0	0.0 - 0.8		Asphalt Pavement								
				0.8 - 1.5		f.m.c. SAND, S. cl. Silt, lit. f.c. gravel, brn, moist		A-2-4	SM					
				1.5 - 5.0	Auger	Cl. SILT, tr. f.m.c. sand, brn, moist		A-4	ML					
						End of Boring @ 5.0 feet								
B-128	7/14/2011	MM 0.9	7.4	0.0 - 0.8		Asphalt Pavement								
				0.8 - 1.1		Subbase								
				1.1 - 2.5		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn, moist		A-2-4	SM					
				2.5 - 5.0	Auger	f.m.c. SAND, S. Cl. Silt, S. f.c. Gravel, brn, moist	9.9	A-2-4	SM	29.1	43.3	27.6		
						End of Boring @ 5.0 feet								
B-129	7/14/2011	MM 1.1	4.6	0.0 - 0.7		Asphalt Pavement								
				0.7 - 0.8		Subbase								
				0.8 - 2.0		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn, moist		A-2-4	SM					
				2.0 - 5.0	Auger	Silty CLAY, tr. f.m.c. sand, tr. f.c. gravel, brn, moist	27.8	A-7-6	CL	1.3	4.1	94.5	42	22
						End of Boring @ 5.0 feet								
B-130	7/14/2011	MM 1.3	6.8	0.0 - 0.7		Asphalt Pavement								
				0.7 - 3.5		f.m.c. SAND, S. Silt, lit. f.c. gravel, brn, moist		A-2-4	SM					
				3.5 - 5.0	Auger	Silty CLAY, lit. f.m.c. sand, brn, moist		A-4	CL					
						End of Boring @ 5.0 feet								

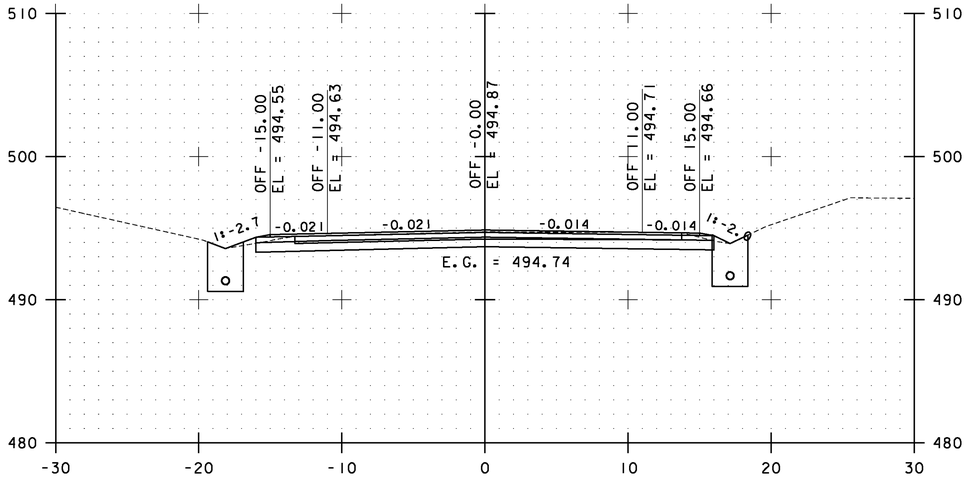
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SOIL BORING DATA SHEET #2

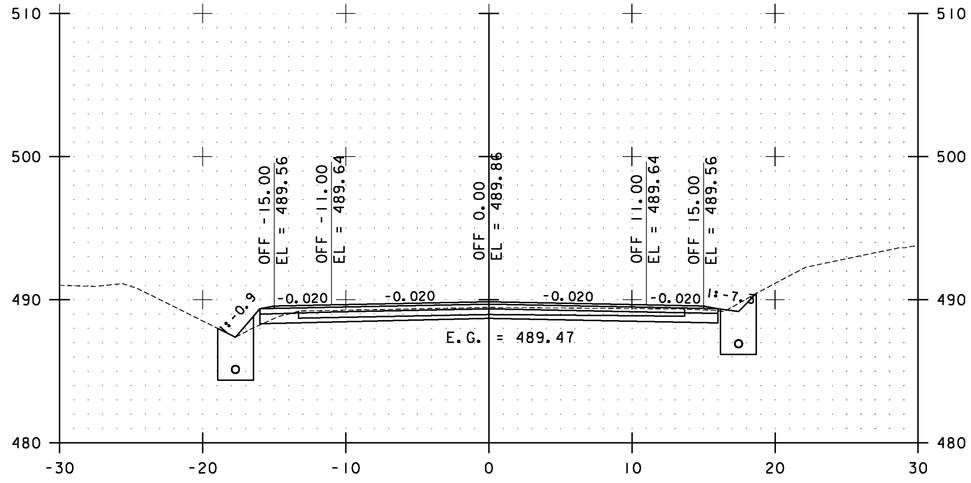
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226pcds02.i

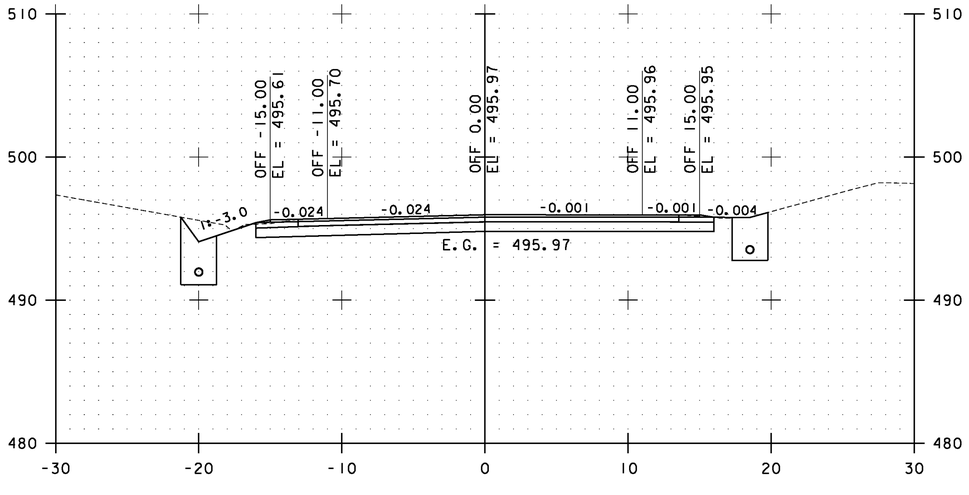
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 91 OF 239



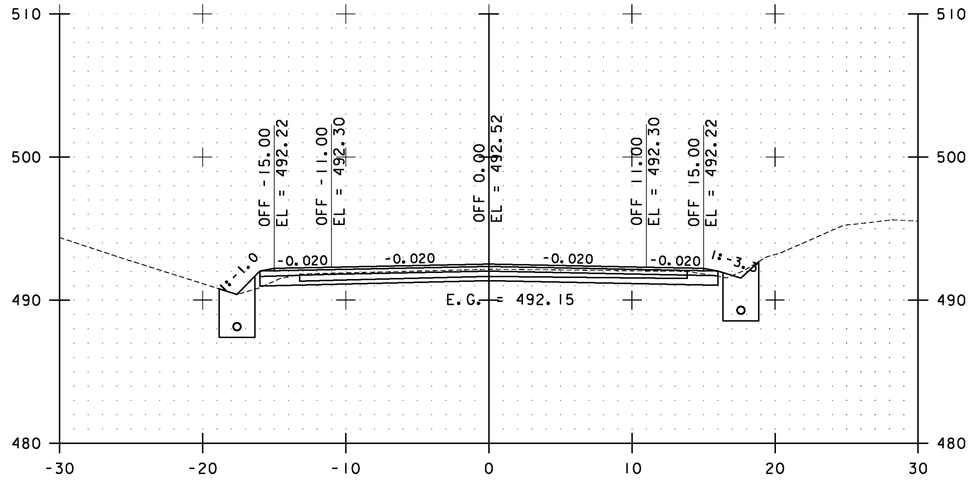
12+00.00



13+00.00



11+71.00 BEGIN RECLAMATION STP 2912(I)



12+50.00

STA. 11+71.00 TO STA. 13+00.00

0 10 20
SCALE

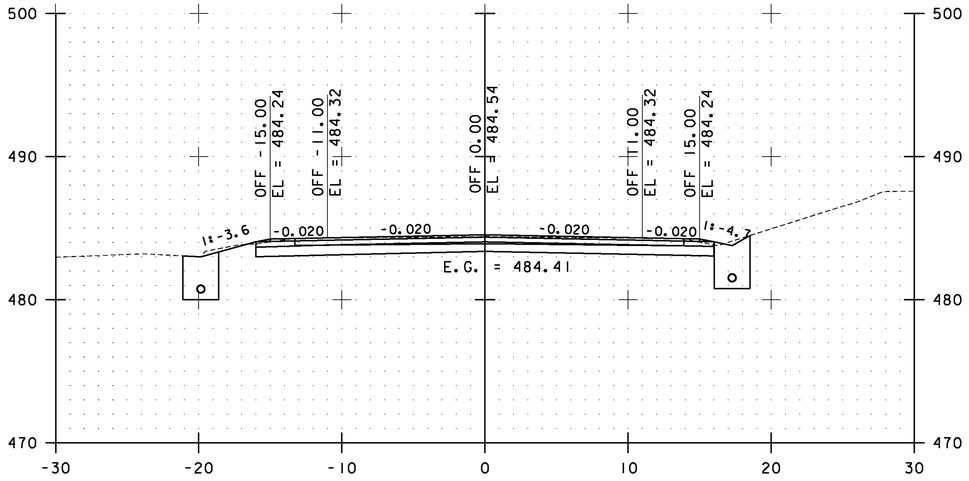
Stantec

ESSEX CROSS SECTIONS SHEET #1

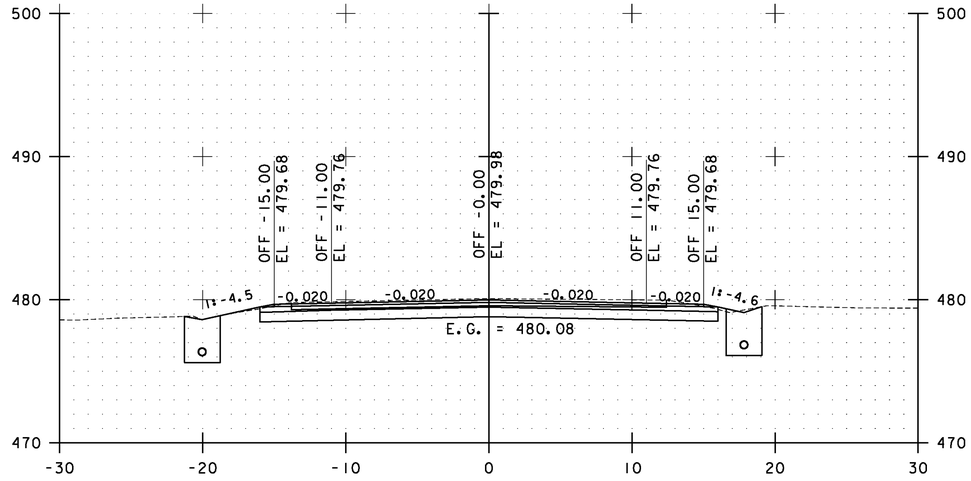
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs001.i

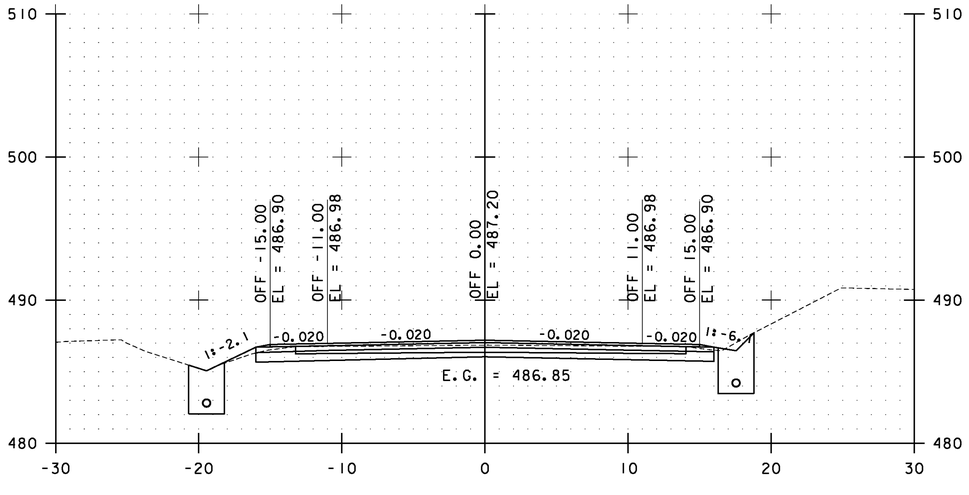
PLOT DATE: 2/20/2013
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CHECKED BY: STANTEC
SHEET 92 OF 239



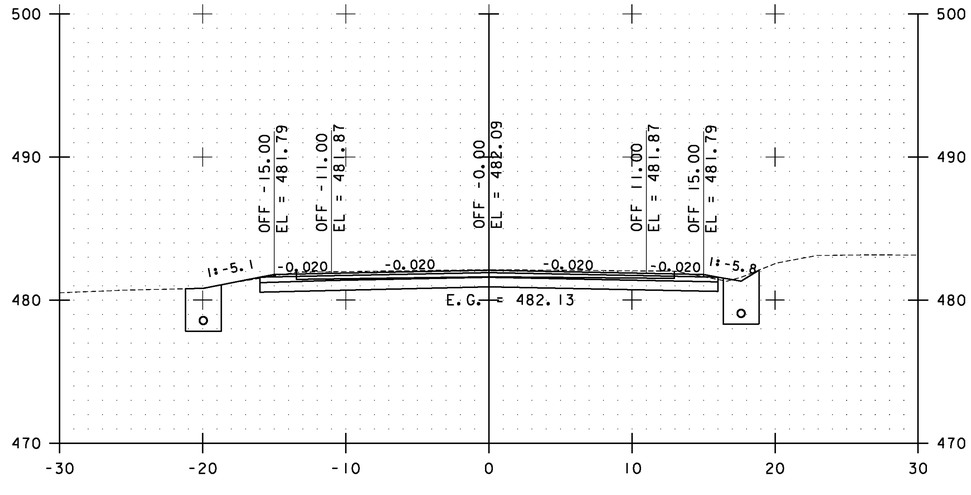
14+00.00



15+00.00



13+50.00



14+50.00

STA. 13+50.00 TO STA. 15+00.00

0 10 20
SCALE

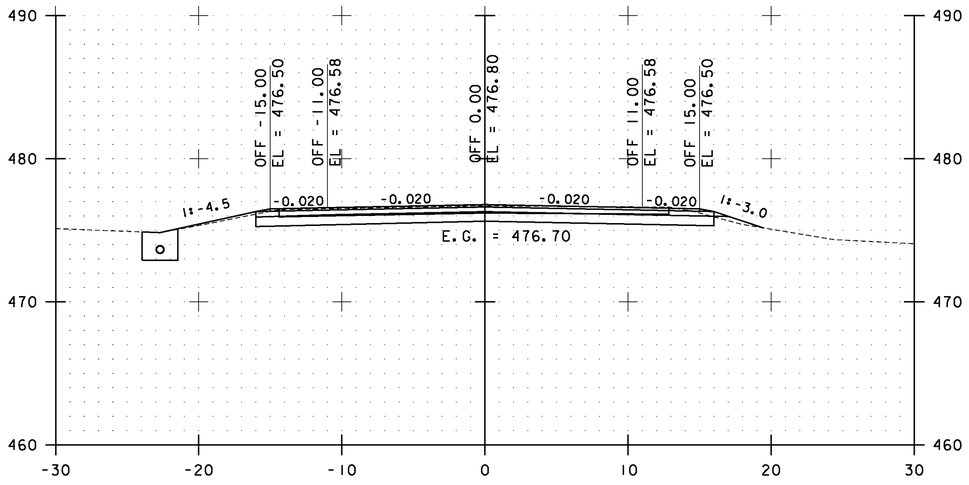
Stantec

ESSEX CROSS SECTIONS SHEET #2

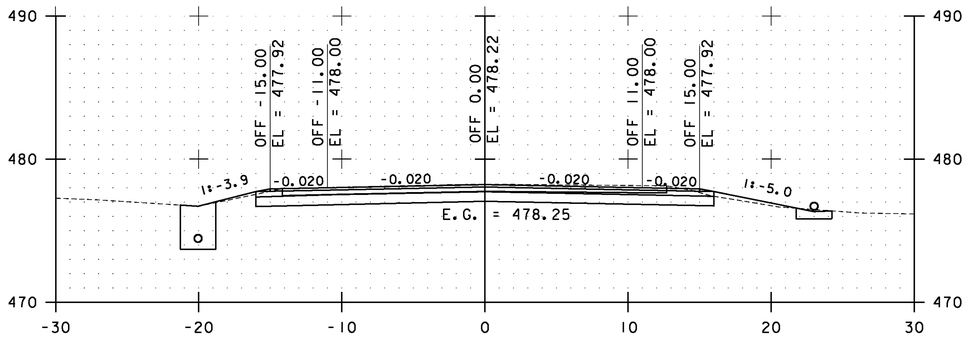
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs002.i

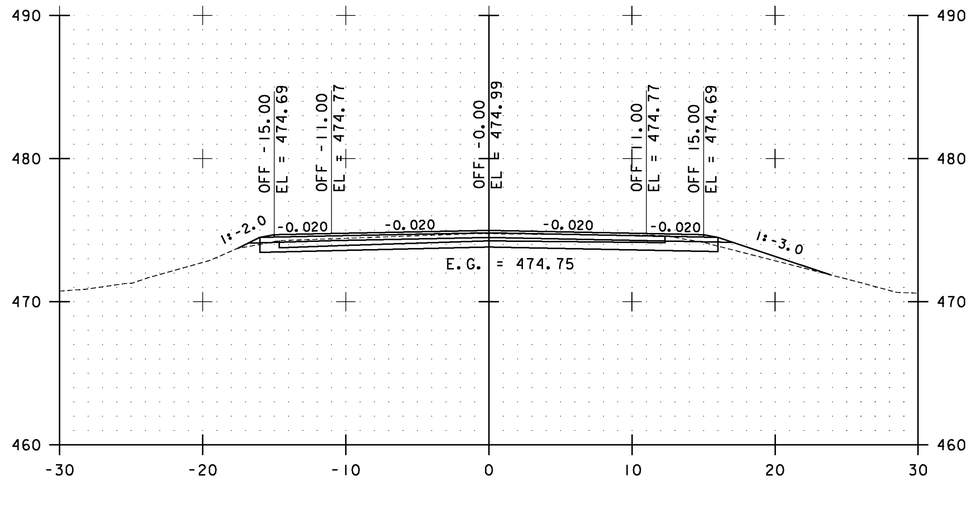
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 93 OF 239



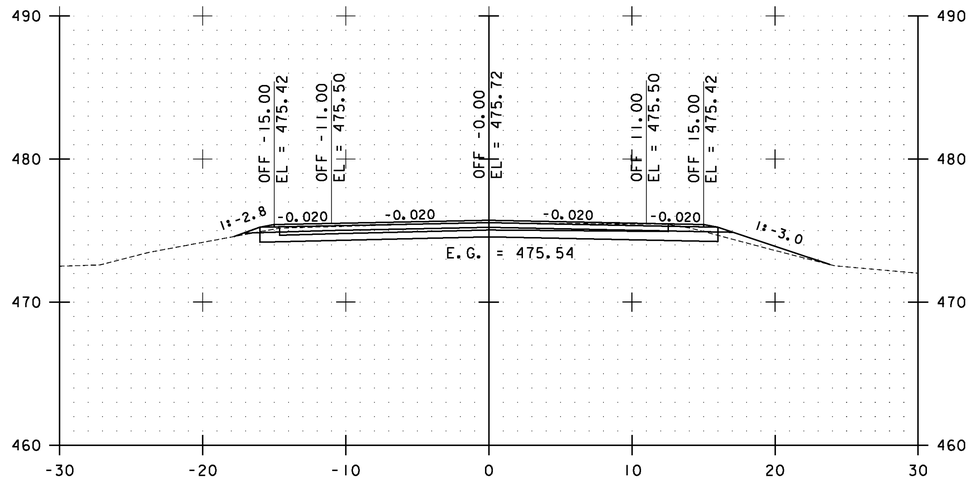
16+00.00



15+50.00



17+00.00



16+50.00

STA. 15+50.00 TO STA. 17+00.00

0 10 20
SCALE

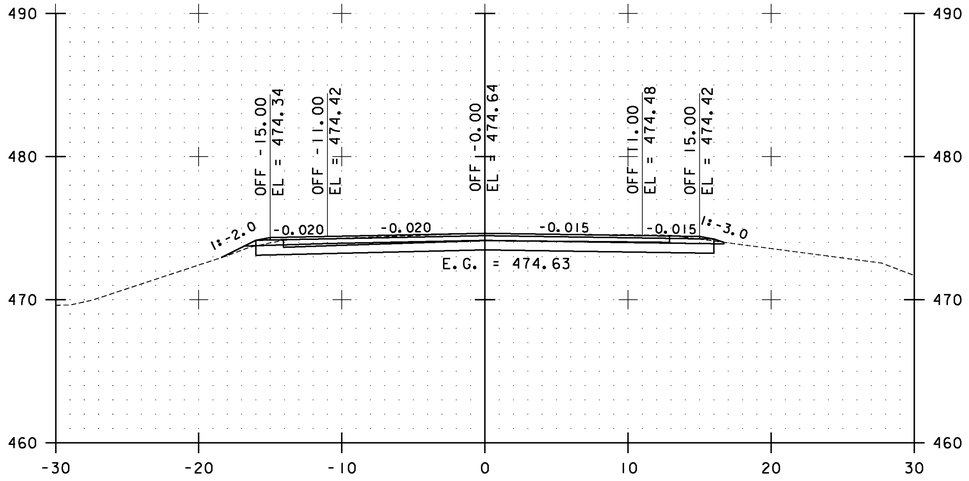
Stantec

ESSEX CROSS SECTIONS SHEET #3

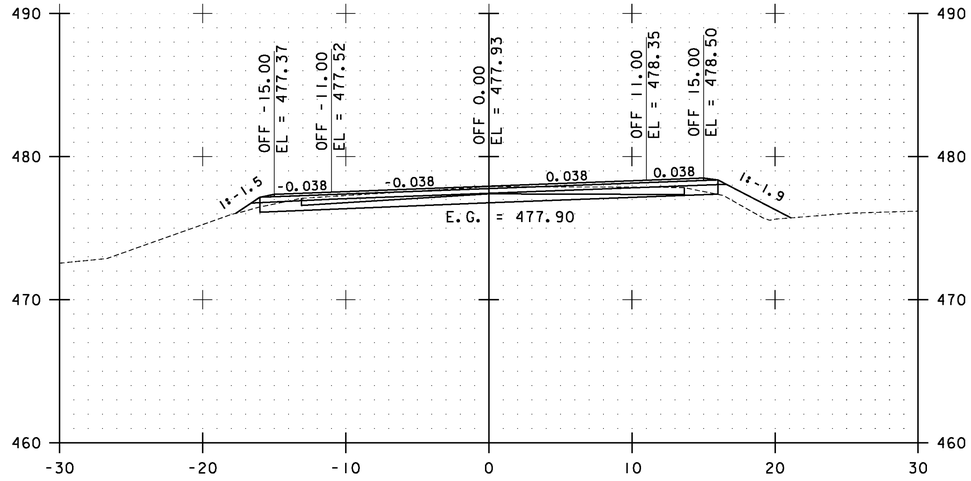
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs003.i

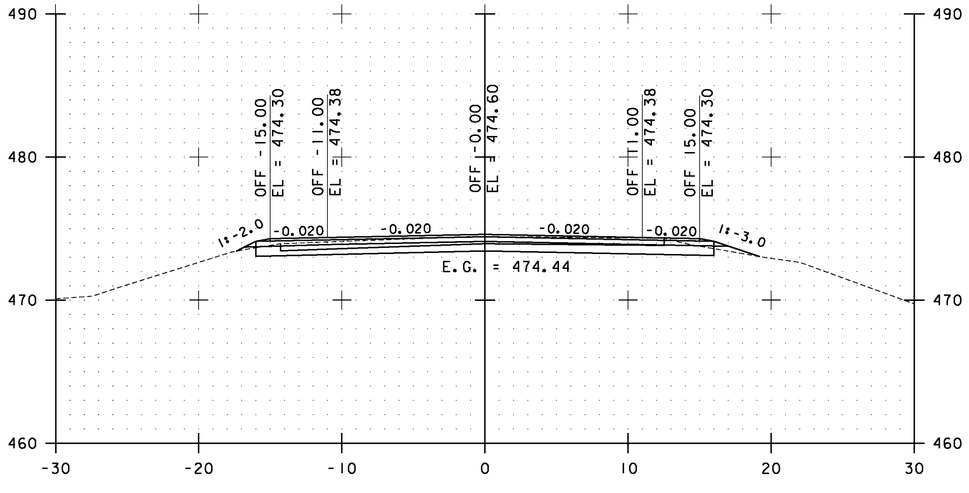
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 94 OF 239



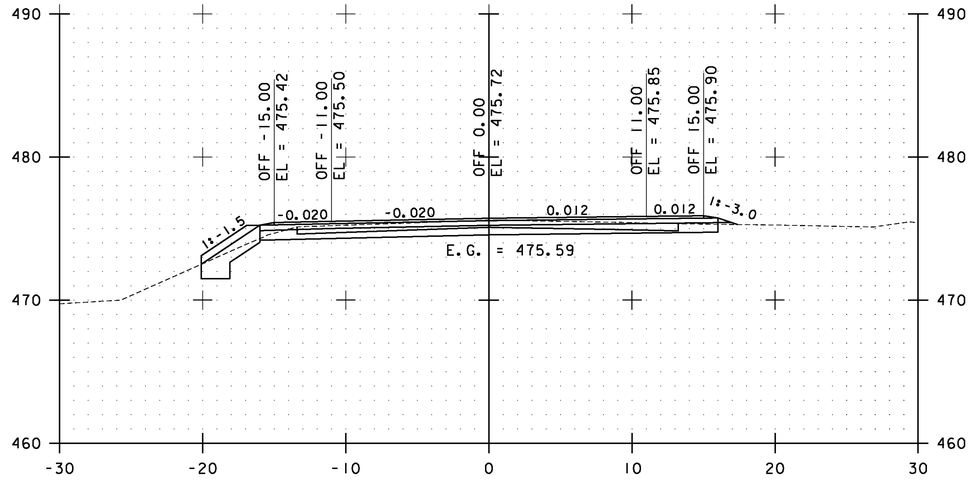
18+00.00



19+00.00



17+50.00



18+50.00

STA. 17+50.00 TO STA. 19+00.00

0 10 20
SCALE

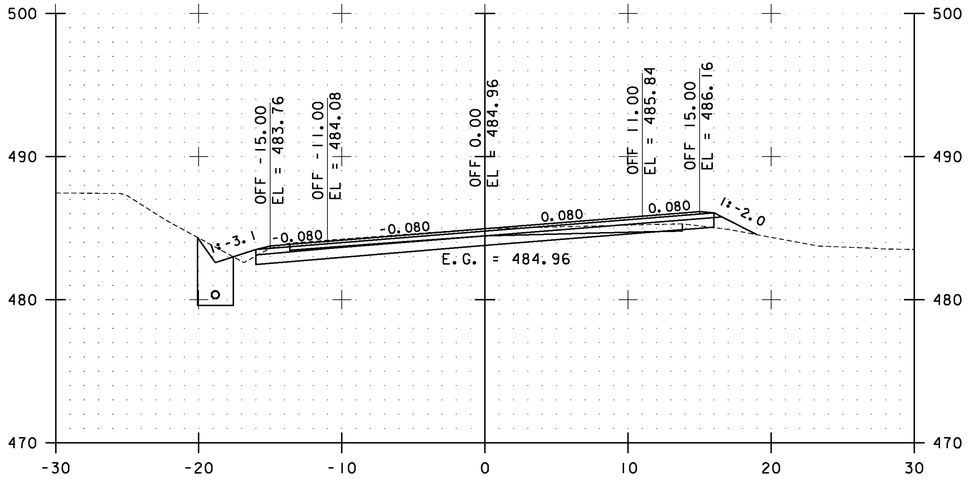
Stantec

ESSEX CROSS SECTIONS SHEET #4

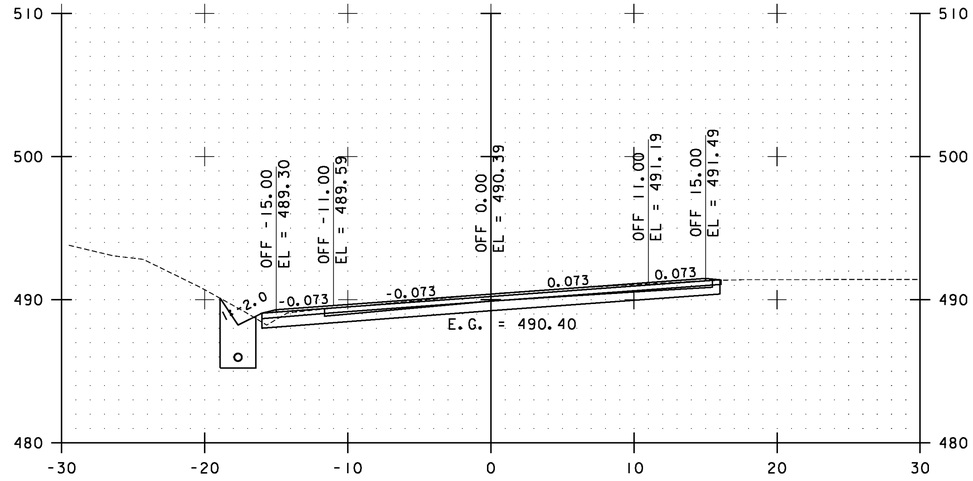
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs004.i

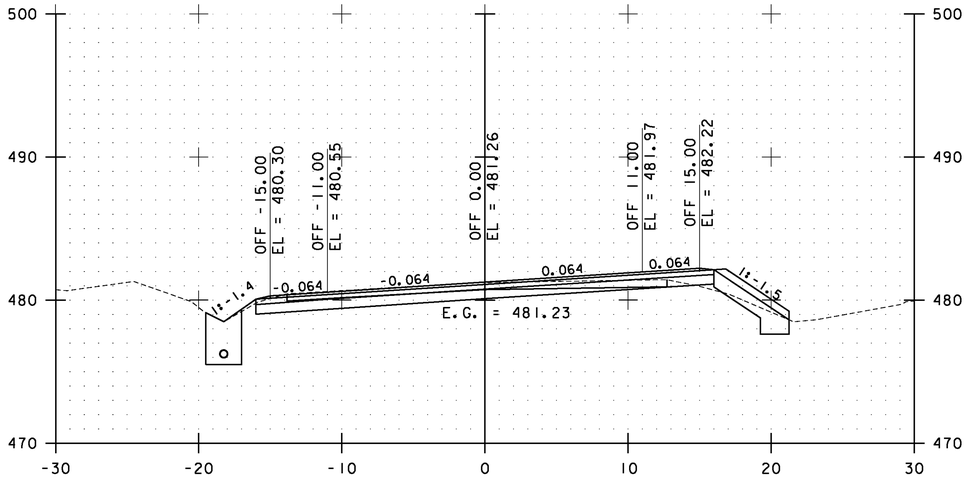
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 95 OF 239



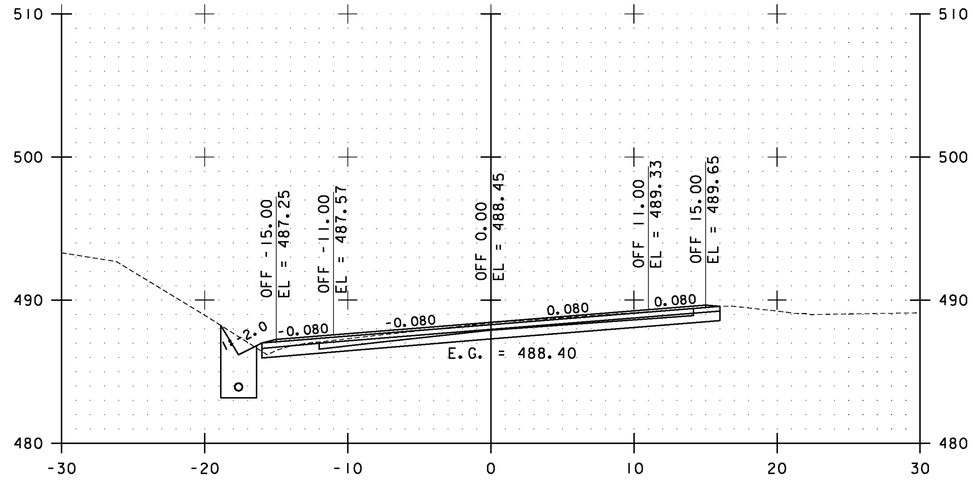
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21+00.00



19+50.00



20+50.00

STA. 19+50.00 TO STA. 21+00.00

0 10 20
SCALE

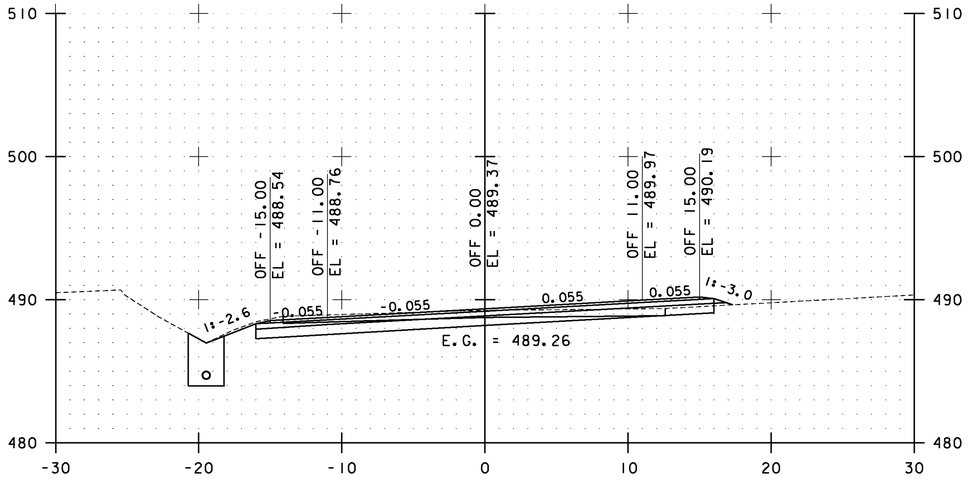
Stantec

ESSEX CROSS SECTIONS SHEET #5

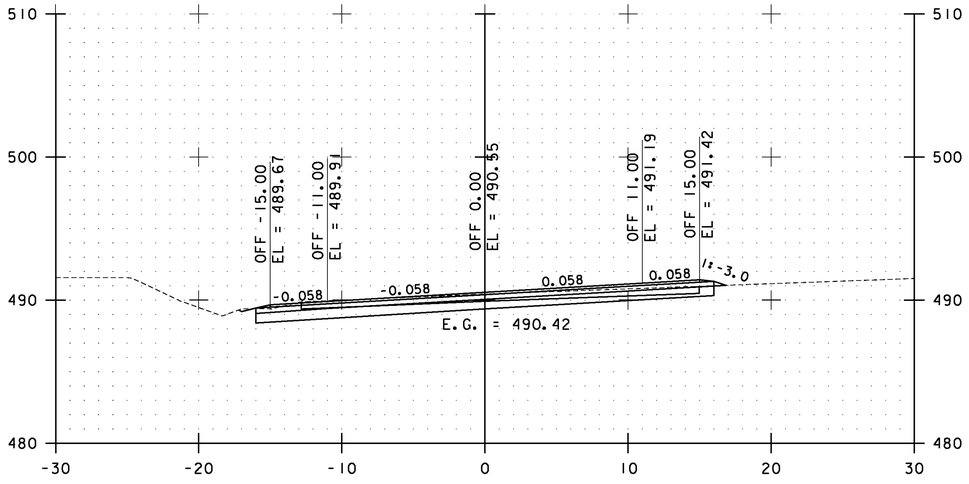
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs005.i

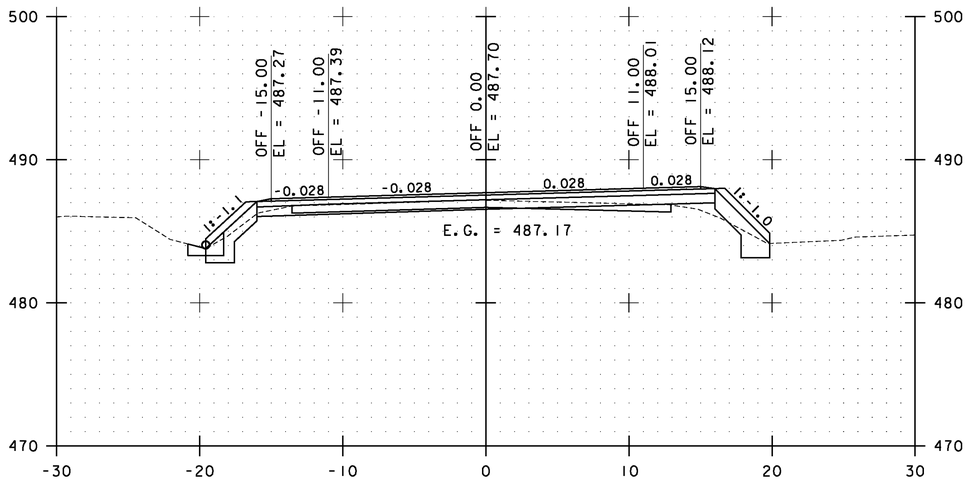
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 96 OF 239



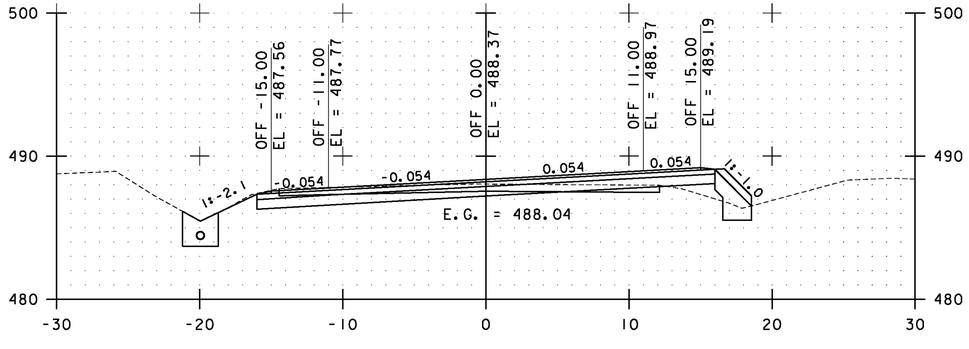
22+00.00



21+50.00



23+00.00



22+50.00

STA. 21+50.00 TO STA. 23+00.00

0 10 20
SCALE

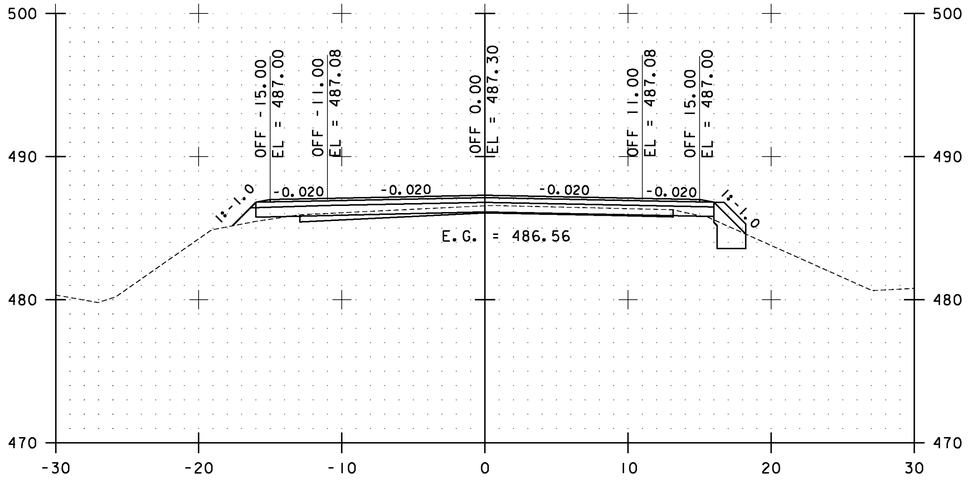
Stantec

ESSEX CROSS SECTIONS SHEET #6

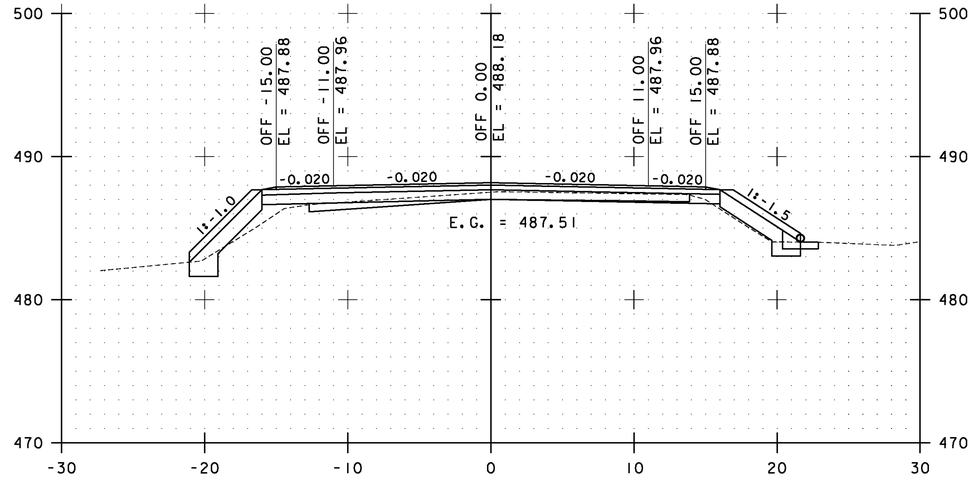
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs006.i

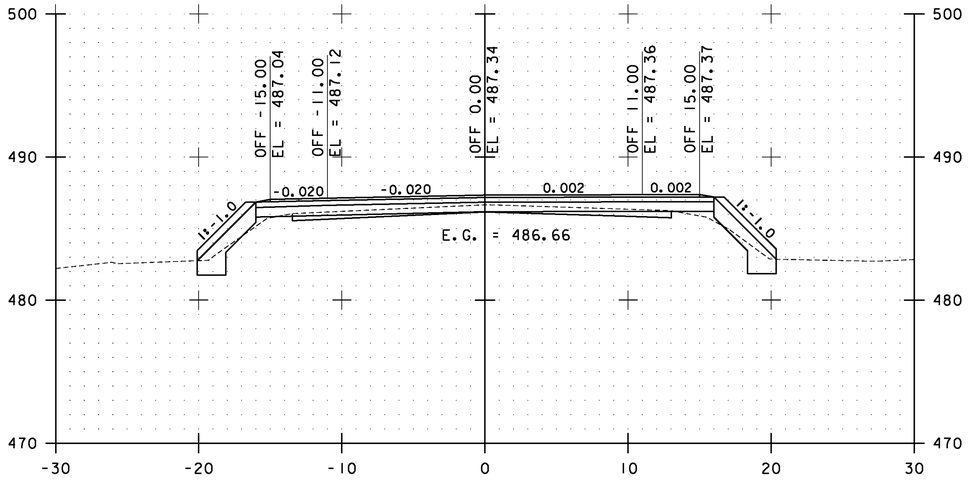
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 97 OF 239



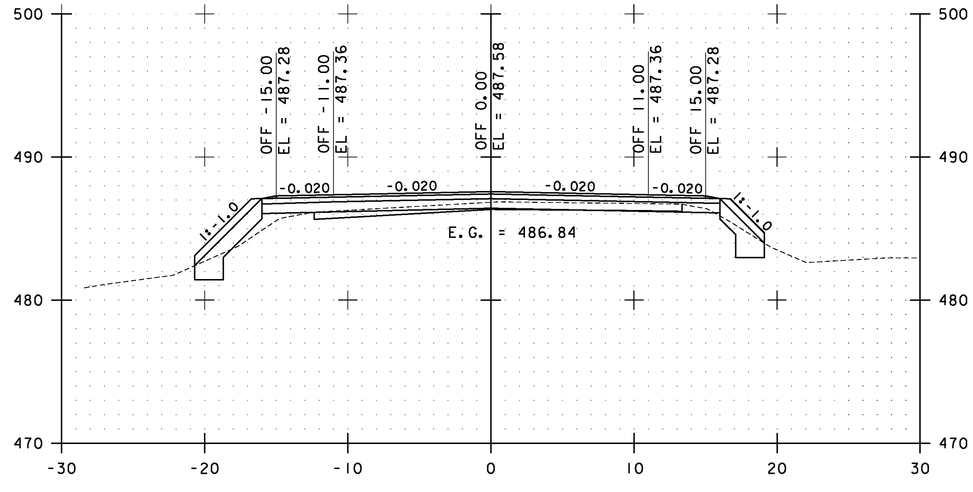
24+00.00



25+00.00



23+50.00



24+50.00

STA. 23+50.00 TO STA. 25+00.00

0 10 20
SCALE

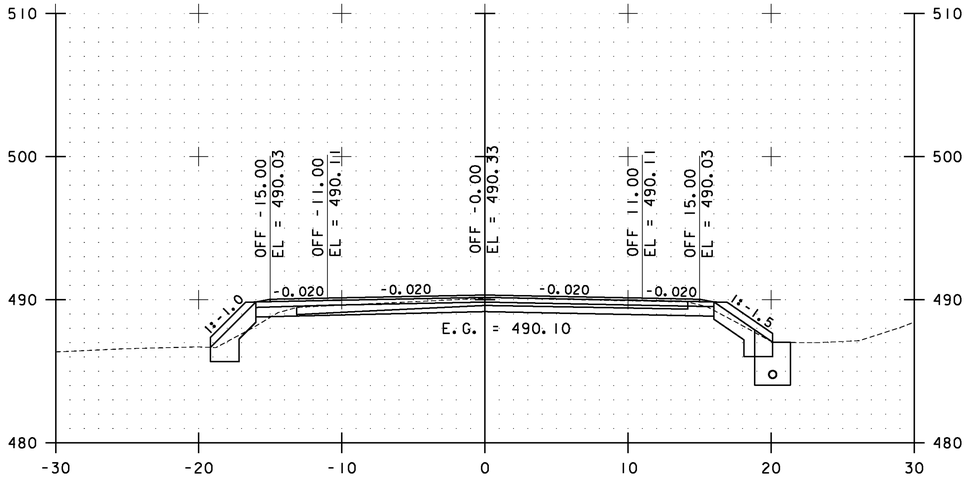
Stantec

ESSEX CROSS SECTIONS SHEET #7

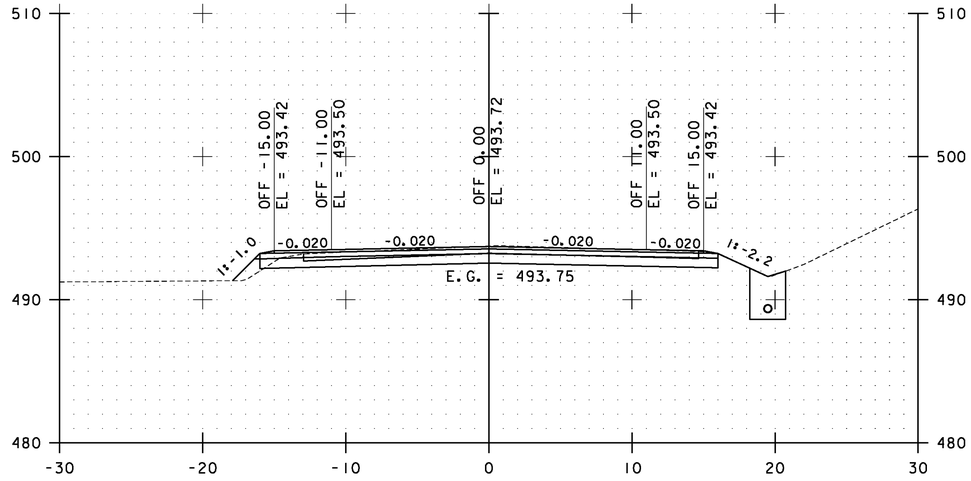
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs007.i

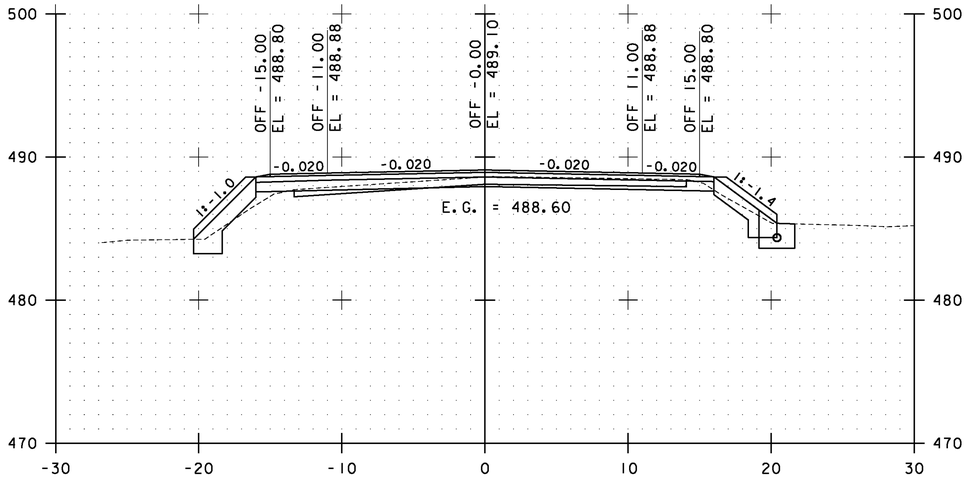
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 98 OF 239



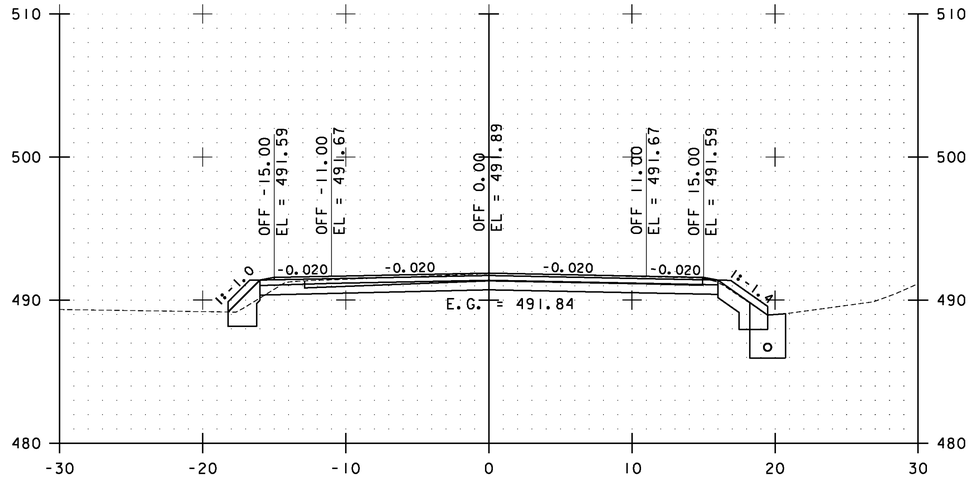
26+00.00



27+00.00



25+50.00



26+50.00

STA. 25+50.00 TO STA. 27+00.00

0 10 20
SCALE

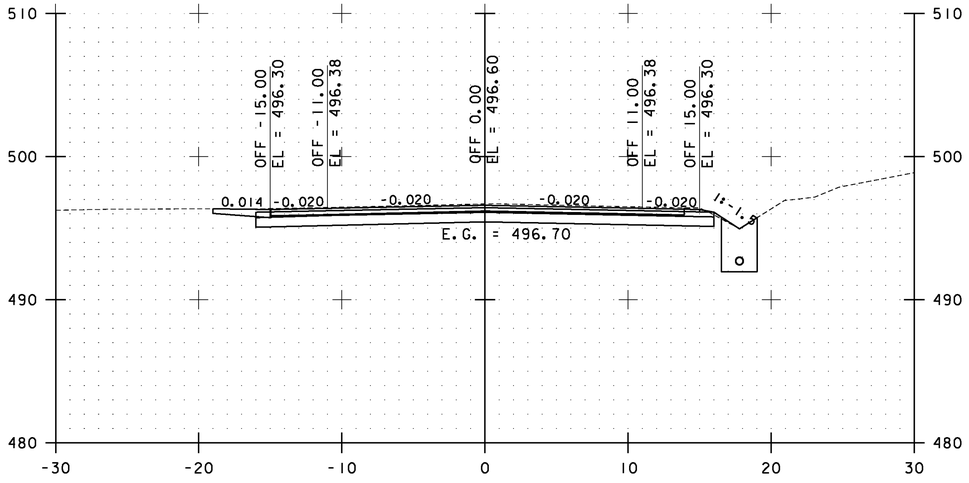
Stantec

ESSEX CROSS SECTIONS SHEET #8

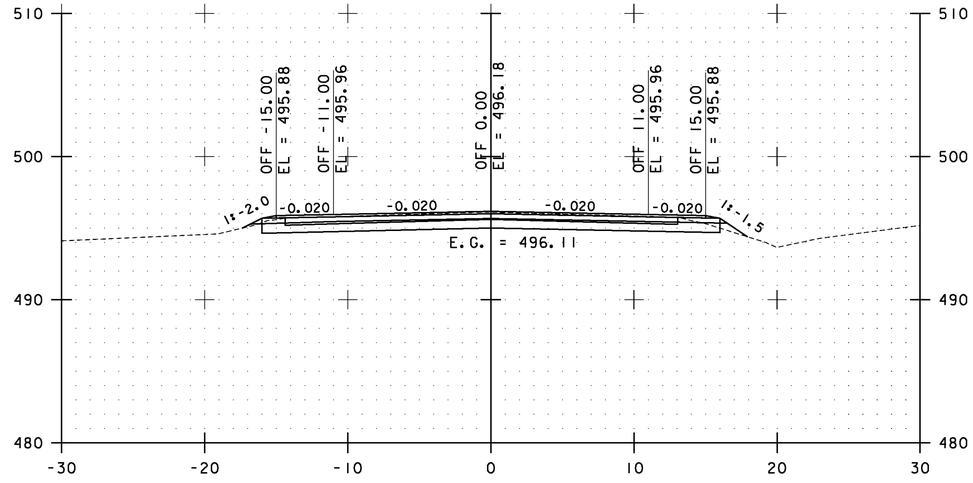
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs008.i

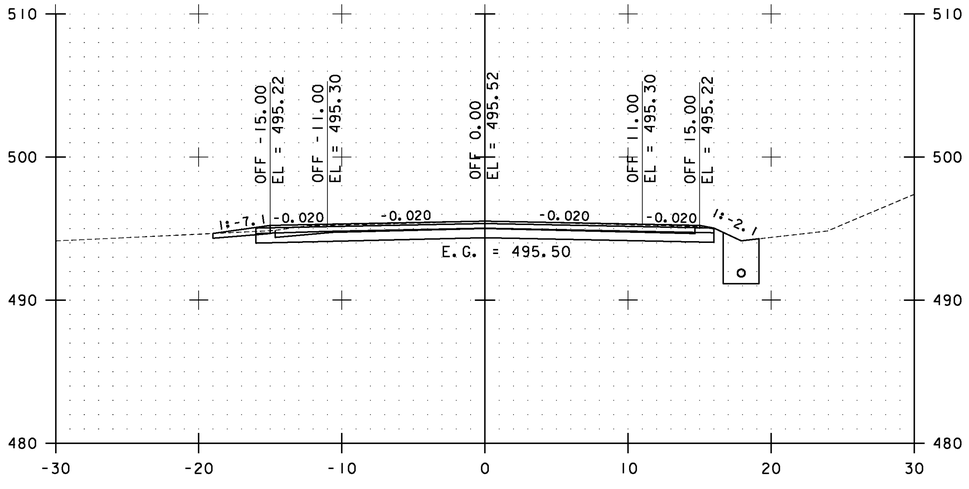
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 99 OF 239



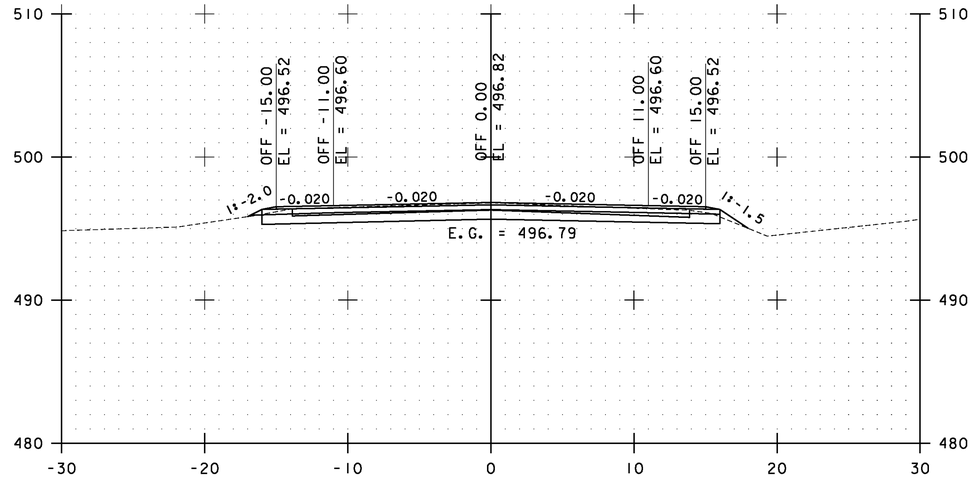
28+00.00



29+00.00



27+50.00



28+50.00

STA. 27+50.00 TO STA. 29+00.00

0 10 20
SCALE

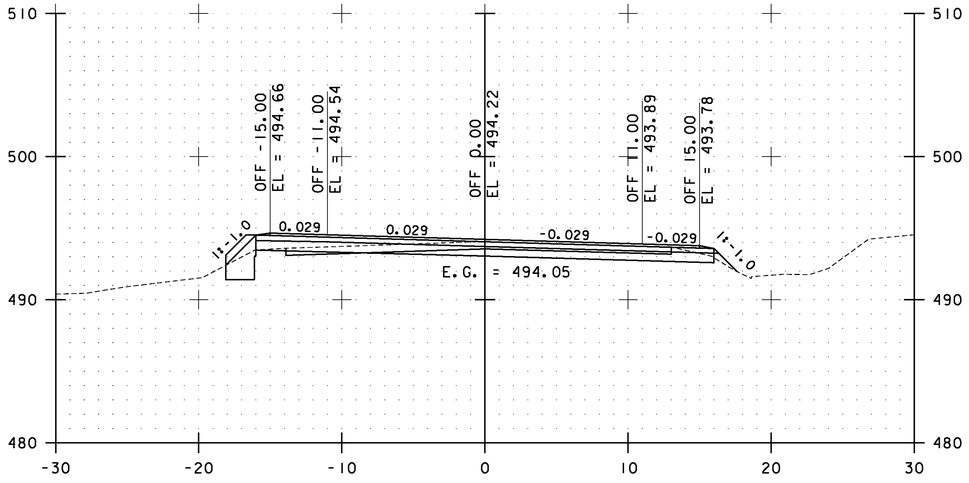
Stantec

ESSEX CROSS SECTIONS SHEET #9

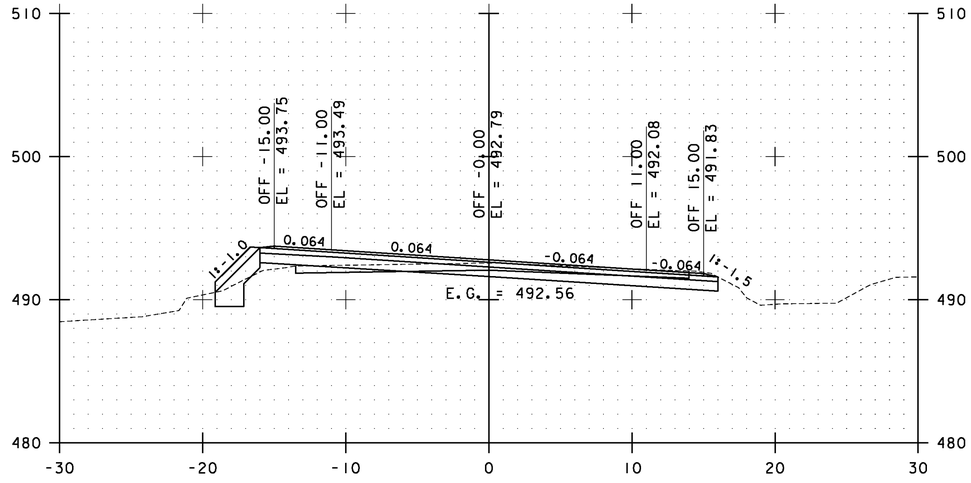
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs009.i

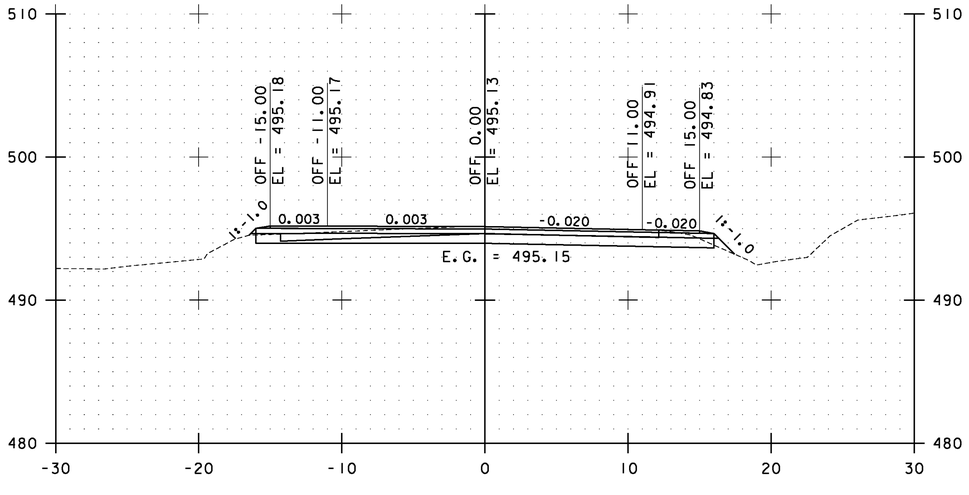
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 100 OF 239



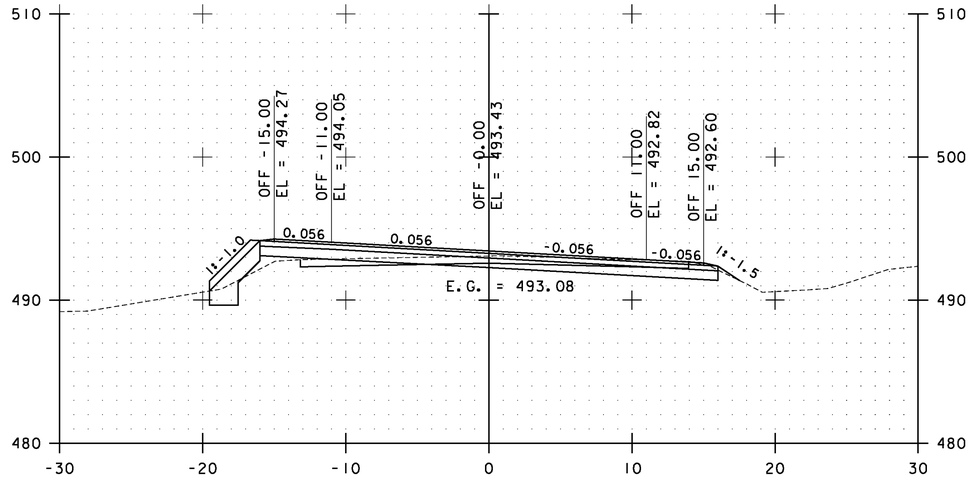
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31+00.00



29+50.00



30+50.00

STA. 29+50.00 TO STA. 31+00.00

0 10 20
SCALE

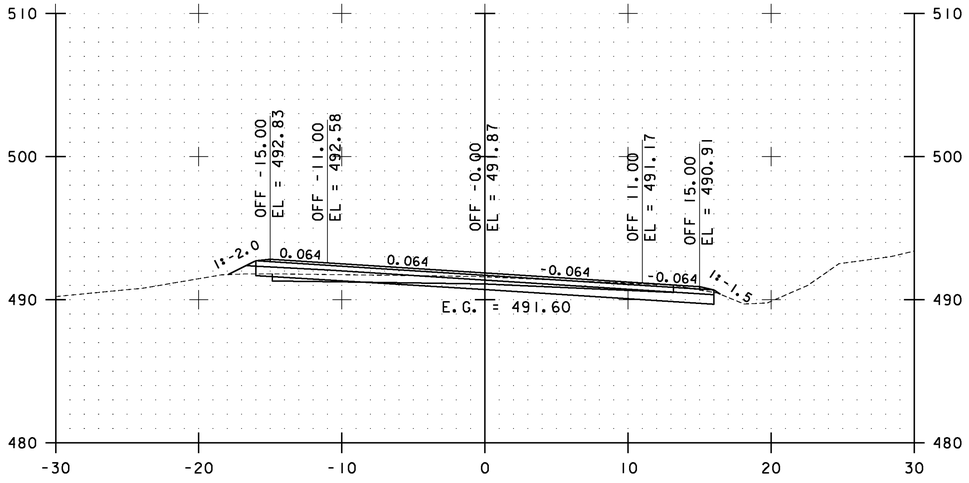
Stantec

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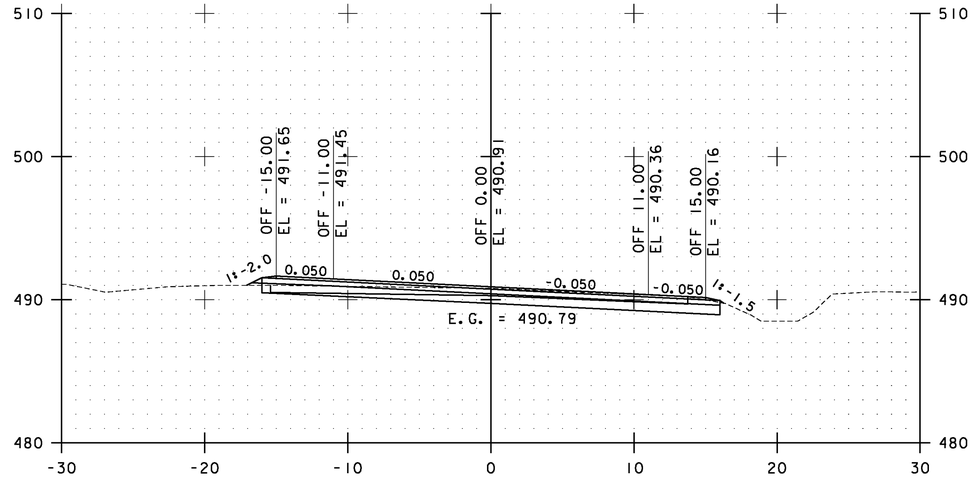
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: pl0c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs010.i

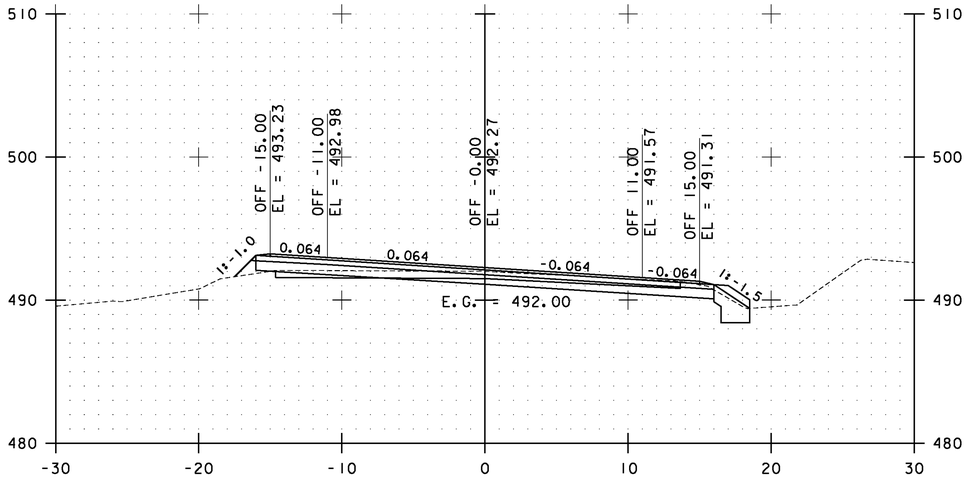
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 101 OF 239



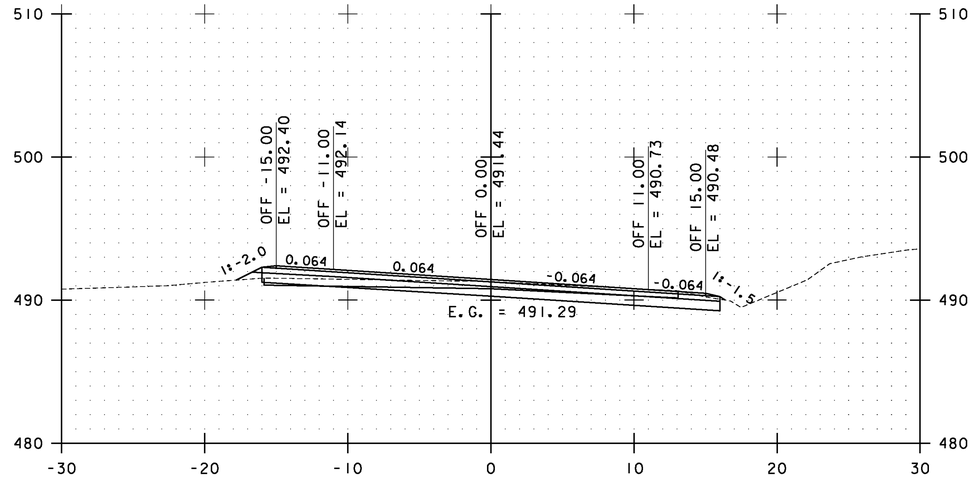
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33+00.00



31+50.00



32+50.00

STA. 31+50.00 TO STA. 33+00.00

0 10 20
SCALE

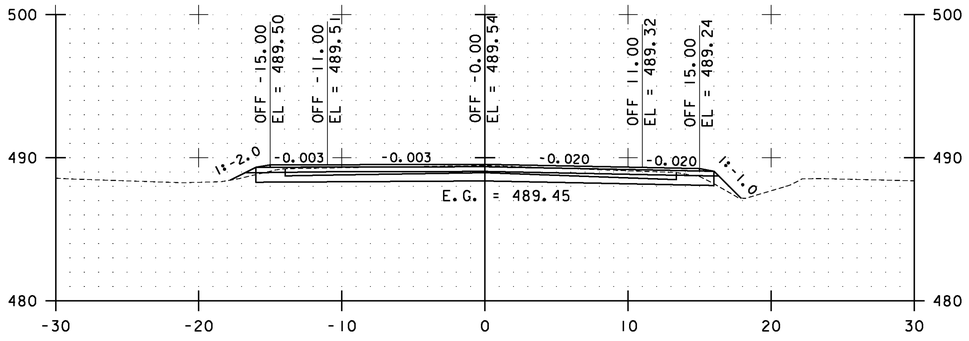
Stantec

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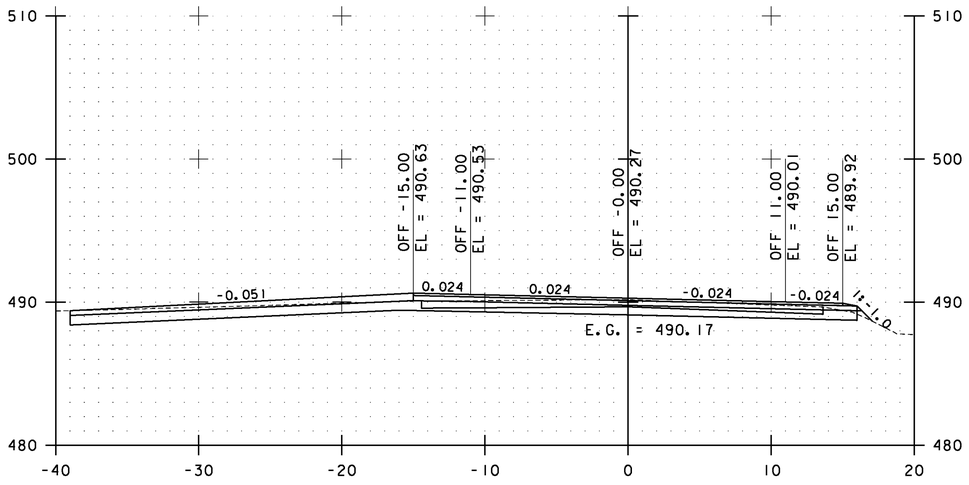
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs011.i

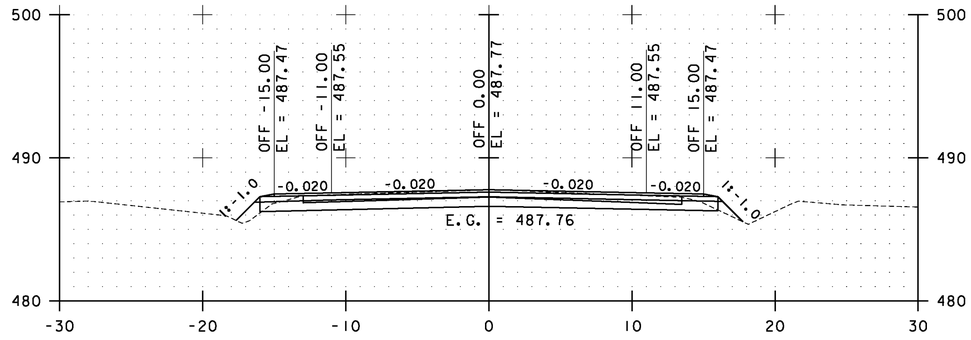
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 102 OF 239



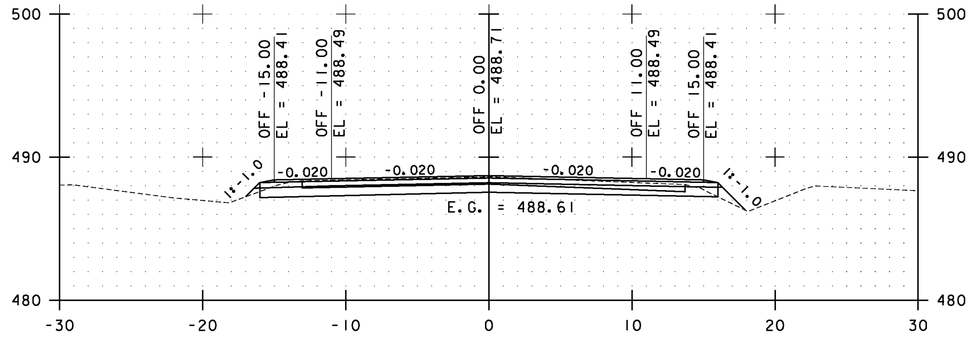
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33+50.00



35+00.00



34+50.00

STA. 33+50.00 TO STA. 35+00.00

0 10 20
SCALE

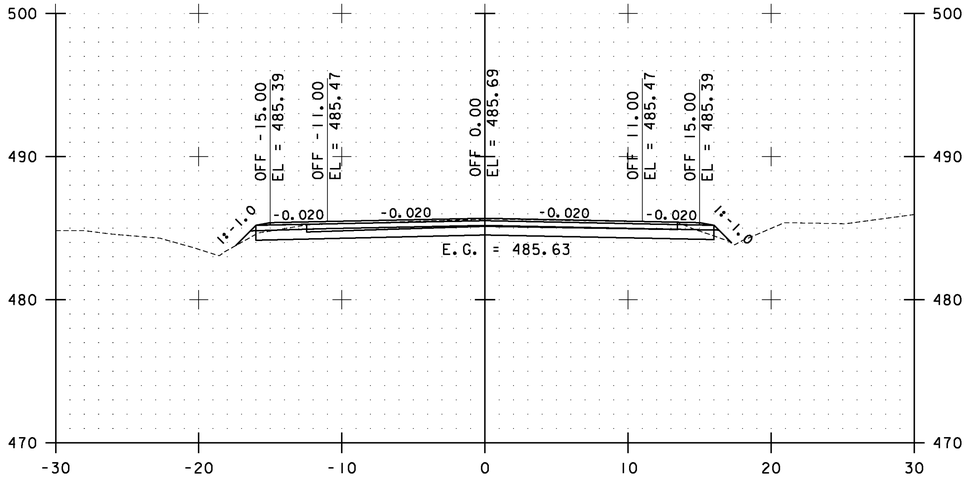
Stantec

ESSEX CROSS SECTIONS SHEET #12

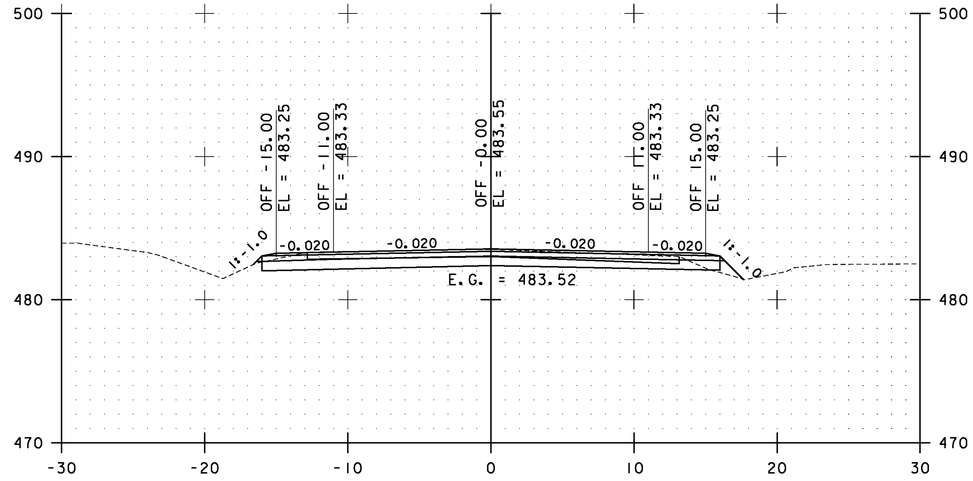
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs012.i

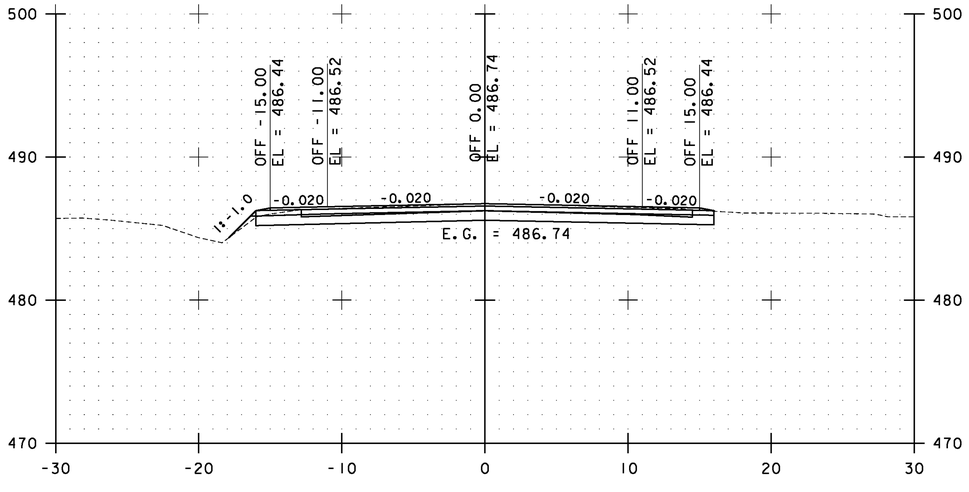
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 103 OF 239



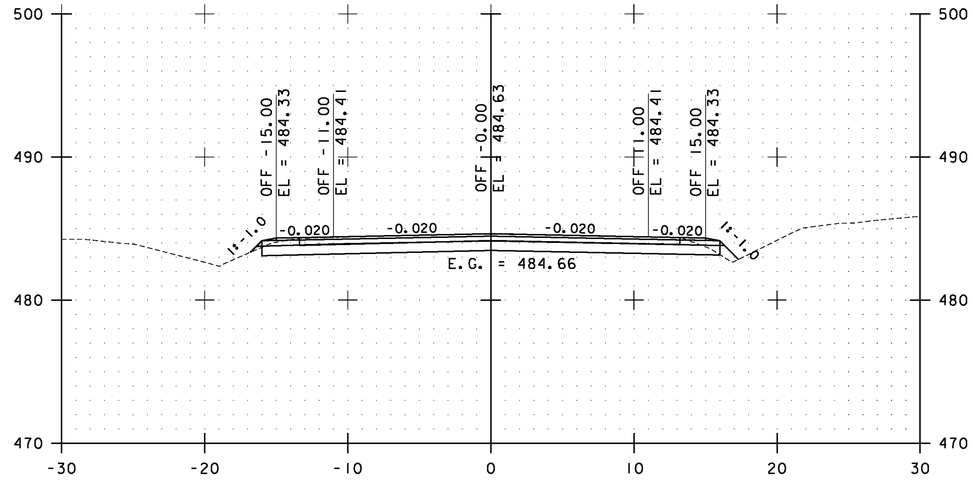
36+00.00



37+00.00



35+50.00



36+50.00

STA. 35+50.00 TO STA. 37+00.00

0 10 20
SCALE

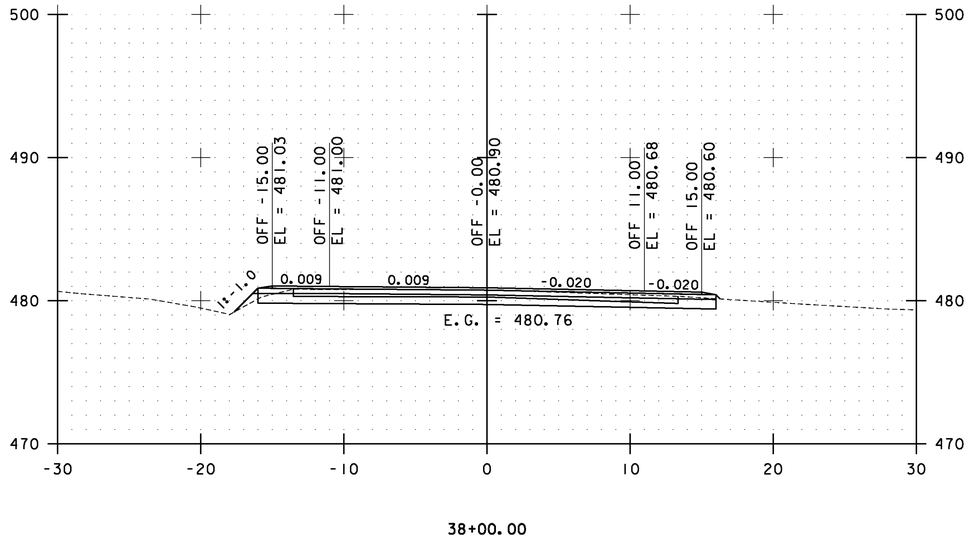
Stantec

ESSEX CROSS SECTIONS SHEET #13

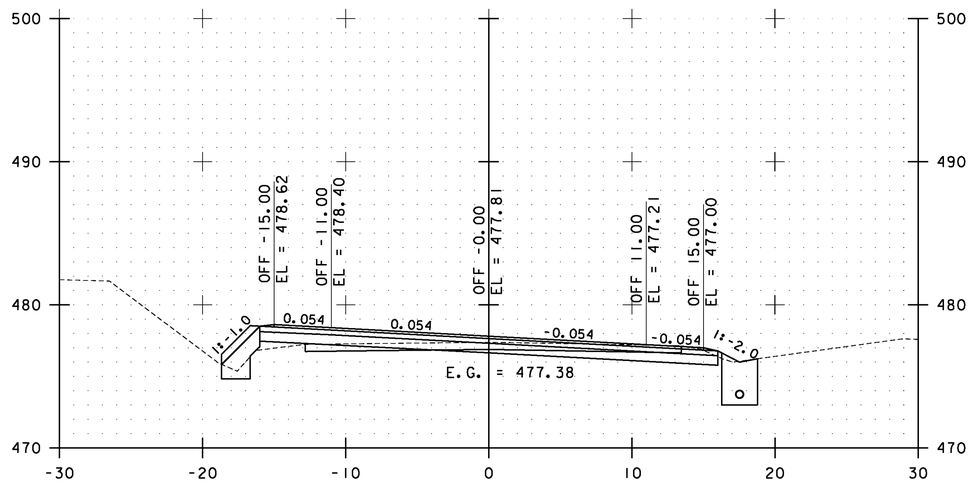
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs013.i

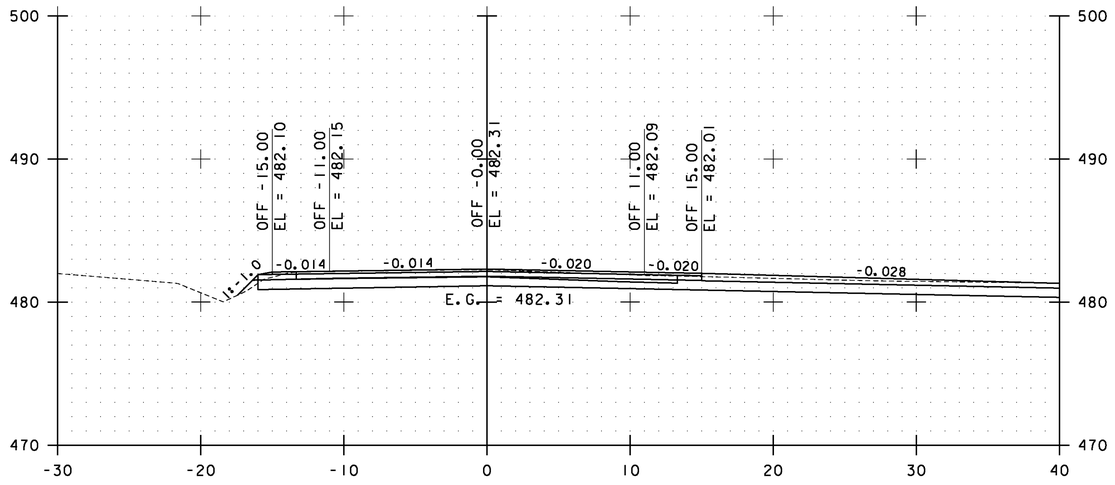
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 104 OF 239



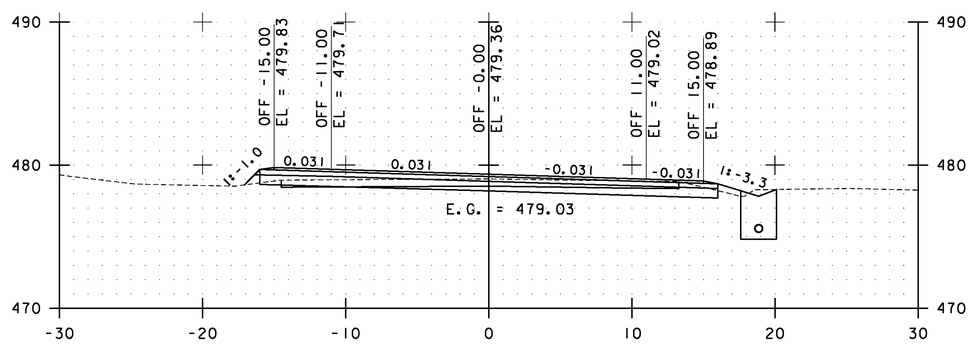
38+00.00



39+00.00



37+50.00



38+50.00

STA. 37+50.00 TO STA. 39+00.00

0 10 20
SCALE

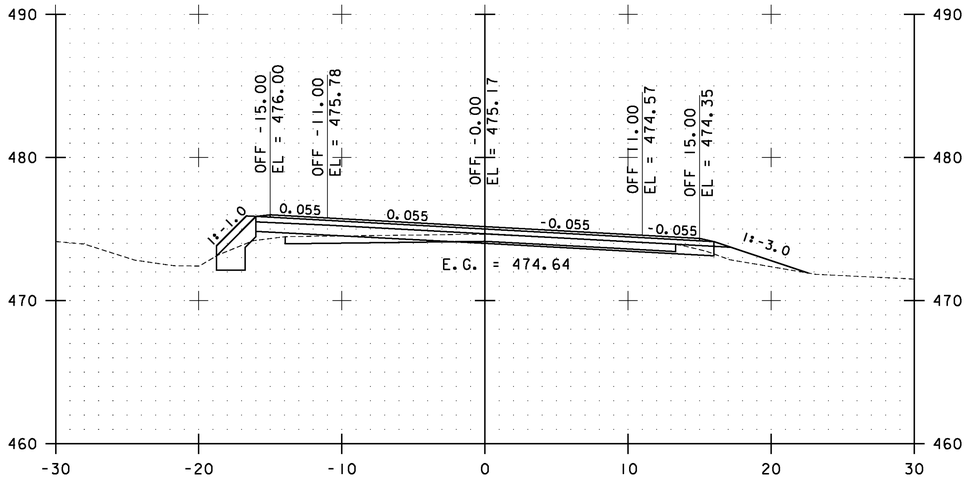
Stantec

ESSEX CROSS SECTIONS SHEET #14

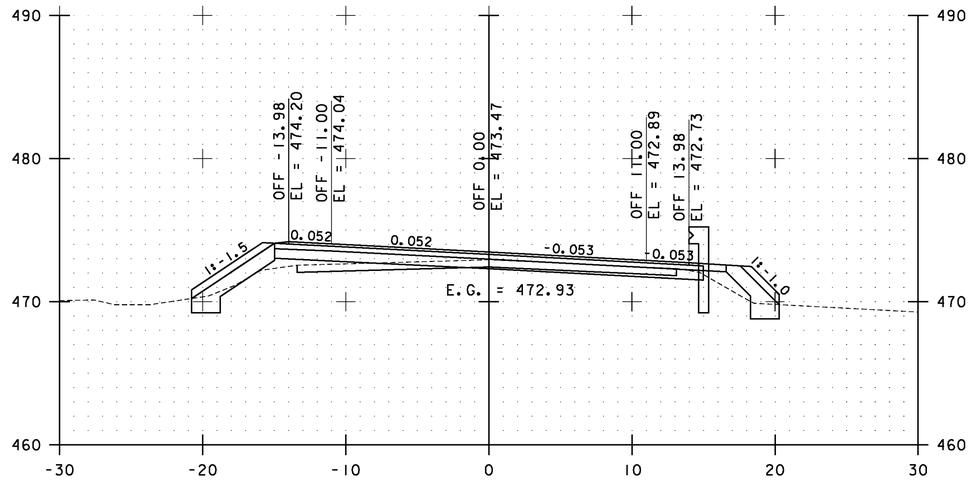
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs014.i

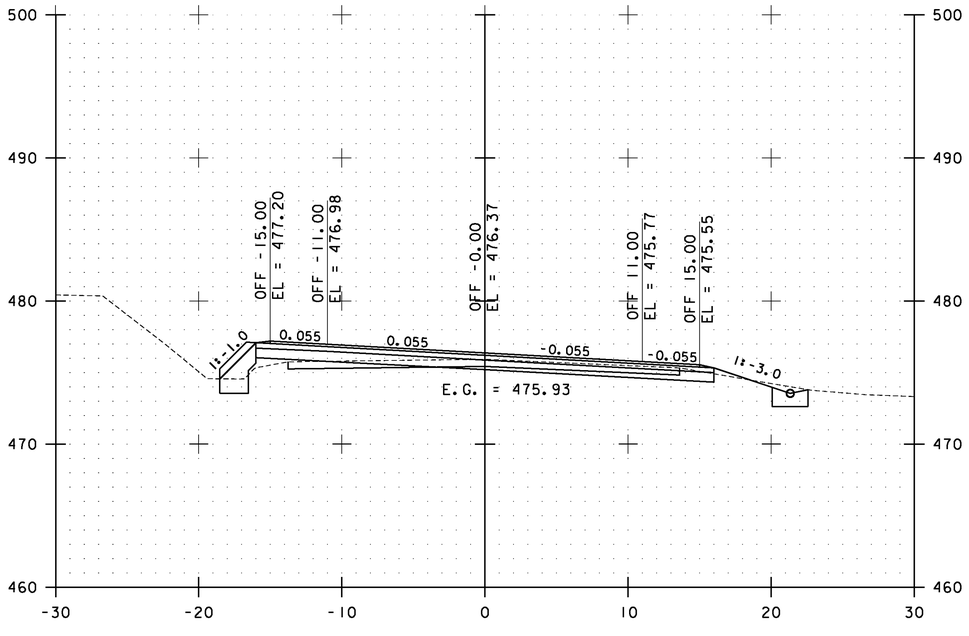
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 105 OF 239



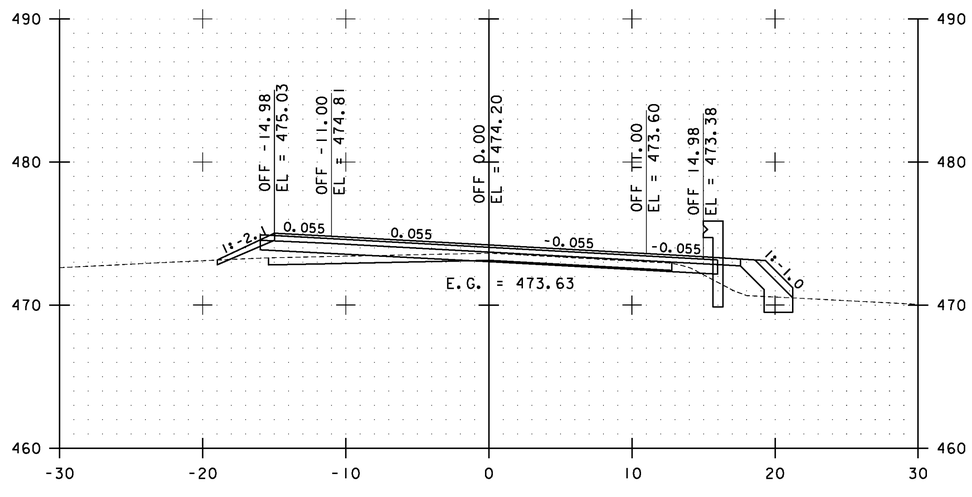
40+00.00



41+00.00



39+50.00



40+50.00

STA. 39+50.00 TO STA. 41+00.00

0 10 20
SCALE

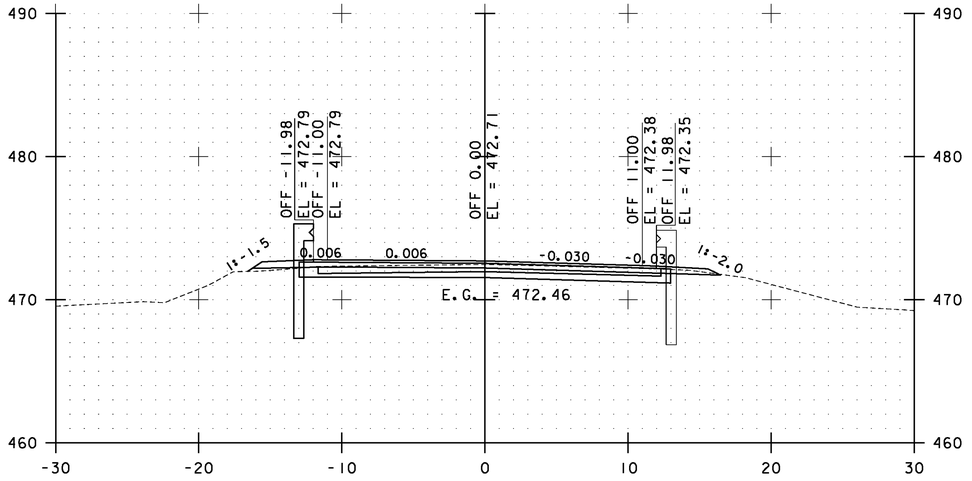
Stantec

ESSEX CROSS SECTIONS SHEET #15

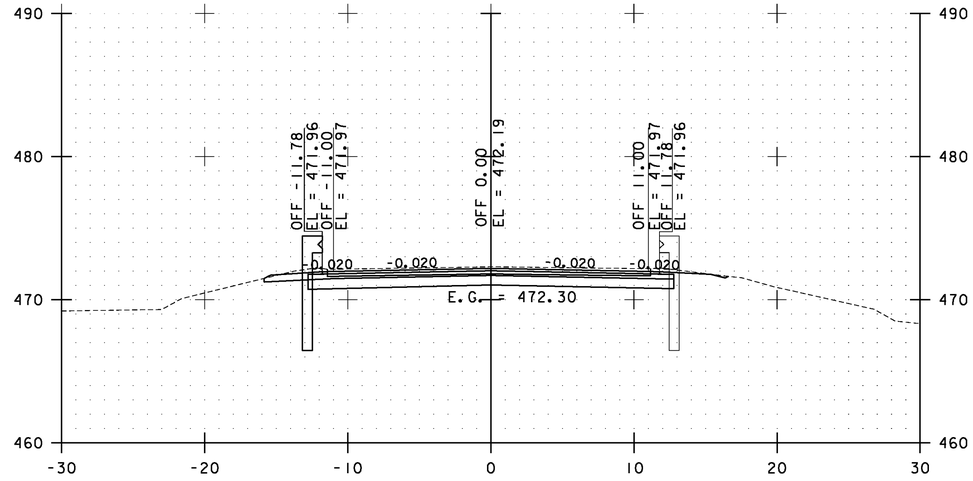
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs015.i

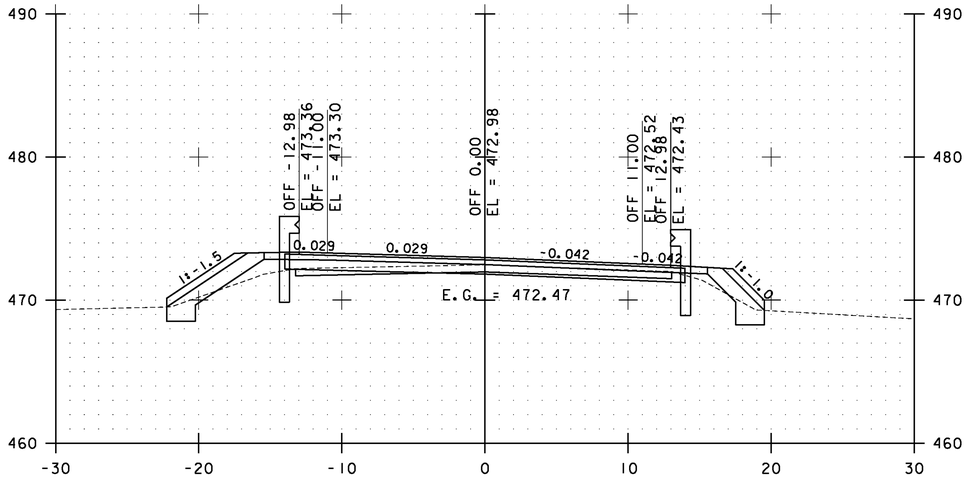
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 106 OF 239



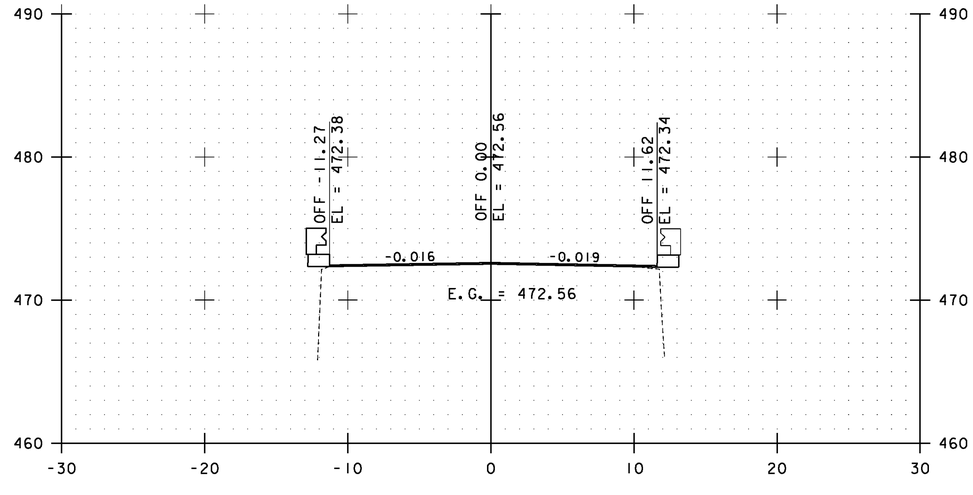
42+00.00



43+00.00



41+50.00



42+50.00

STA. 41+50.00 TO STA. 43+00.00

0 10 20
SCALE

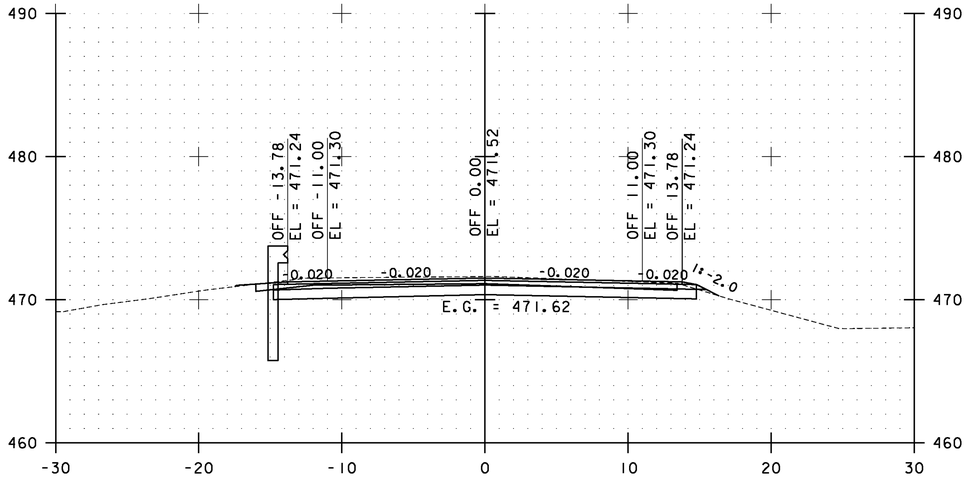
Stantec

ESSEX CROSS SECTIONS SHEET #16

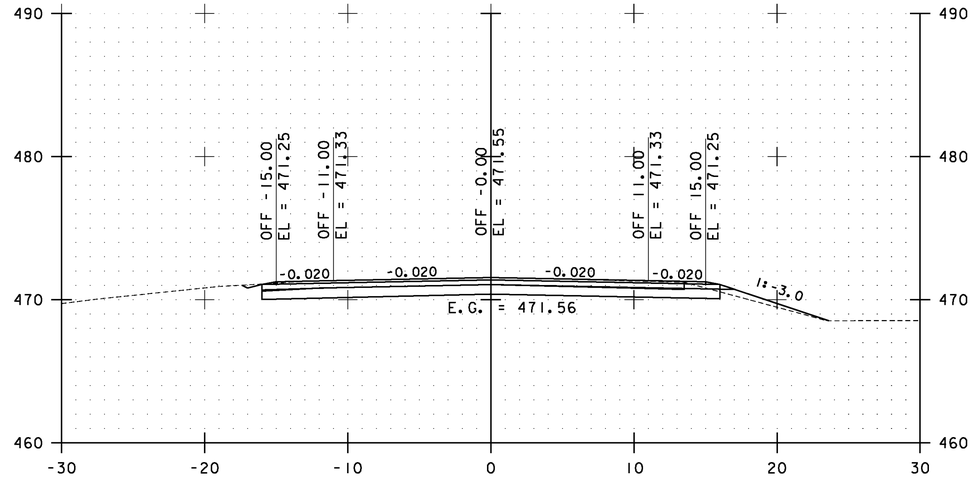
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs016.i

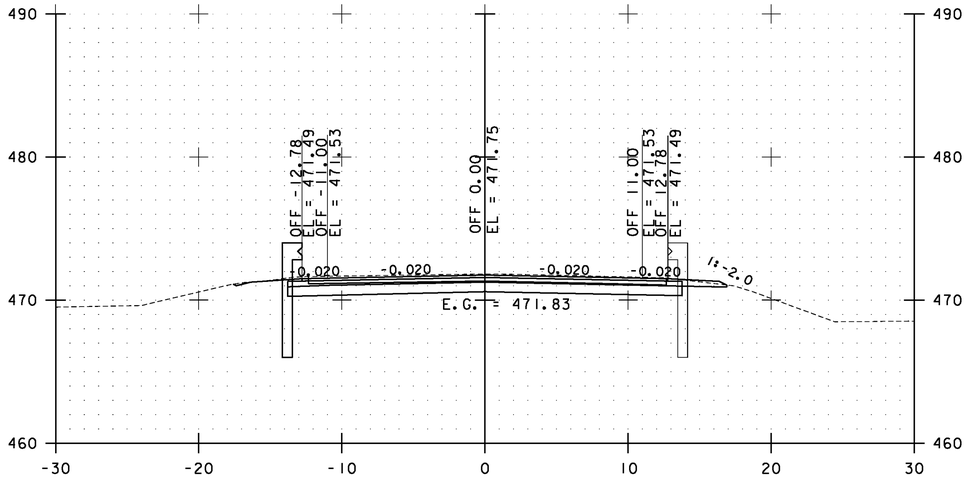
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 107 OF 239



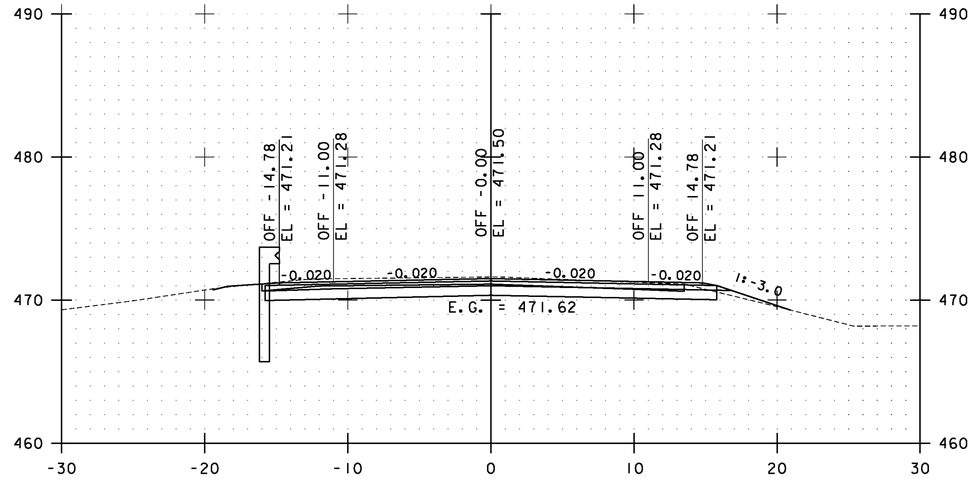
44+00.00



45+00.00



43+50.00



44+50.00

STA. 43+50.00 TO STA. 45+00.00

0 10 20
SCALE

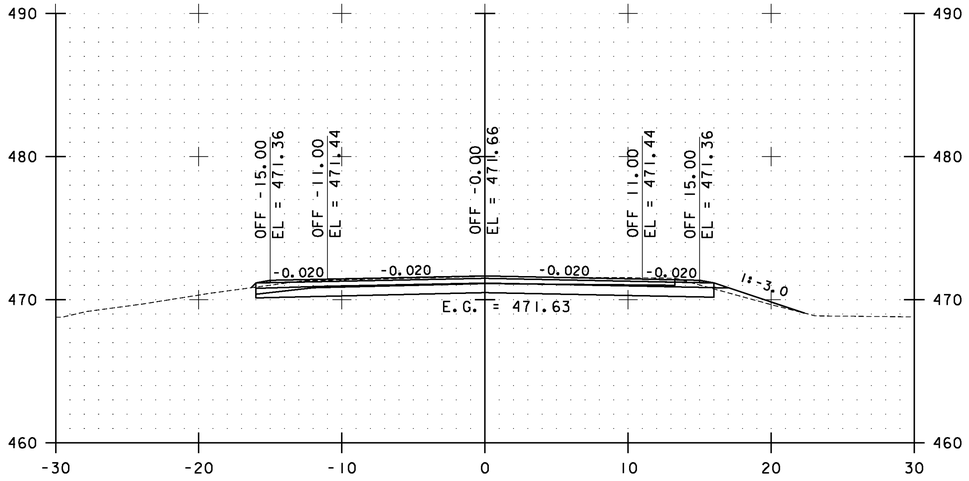
Stantec

ESSEX CROSS SECTIONS SHEET #17

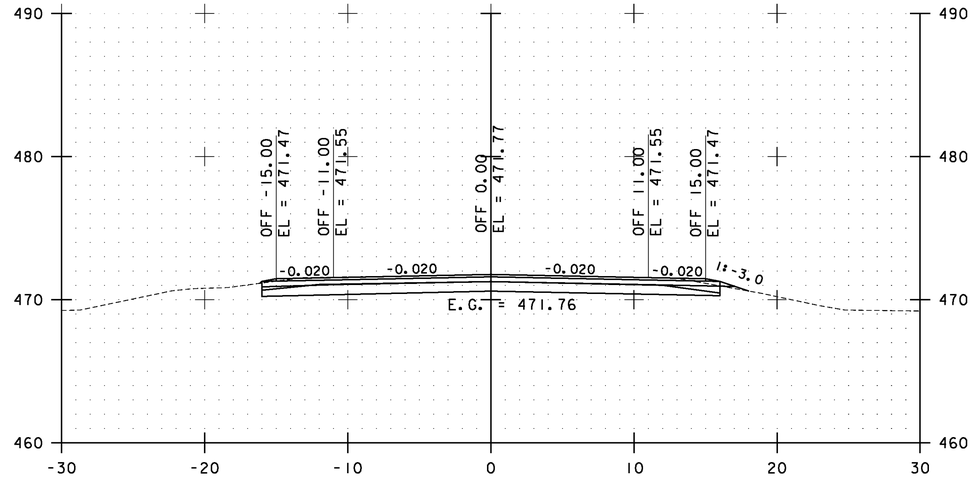
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs017.i

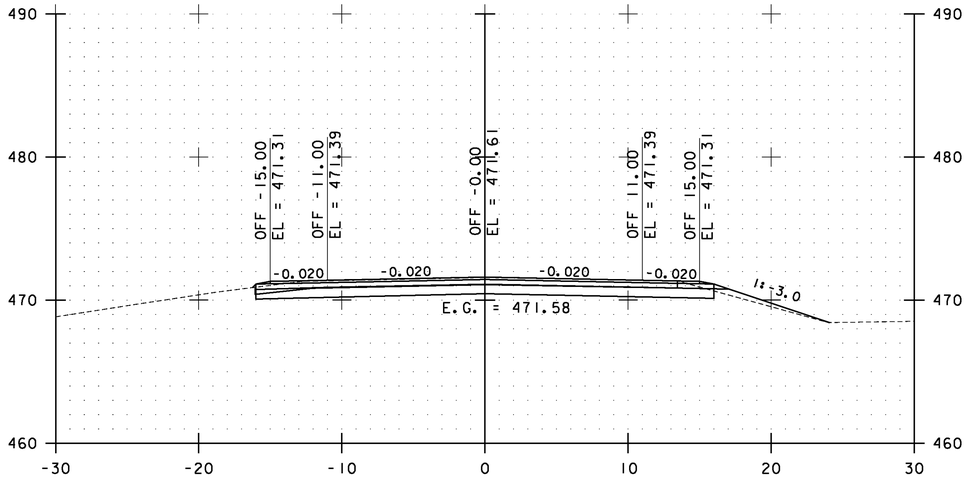
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 108 OF 239



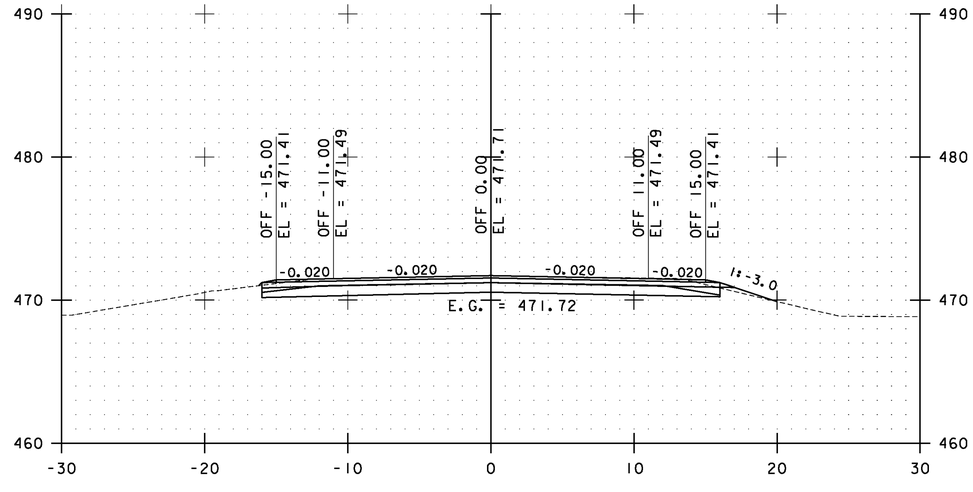
46+00.00



47+00.00



45+50.00



46+50.00

STA. 45+50.00 TO STA. 47+00.00

0 10 20
SCALE

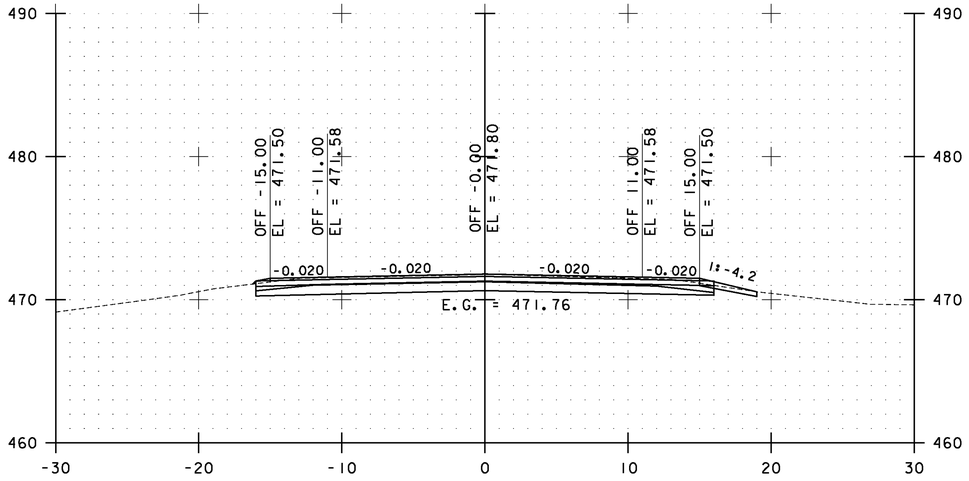
Stantec

ESSEX CROSS SECTIONS SHEET #18

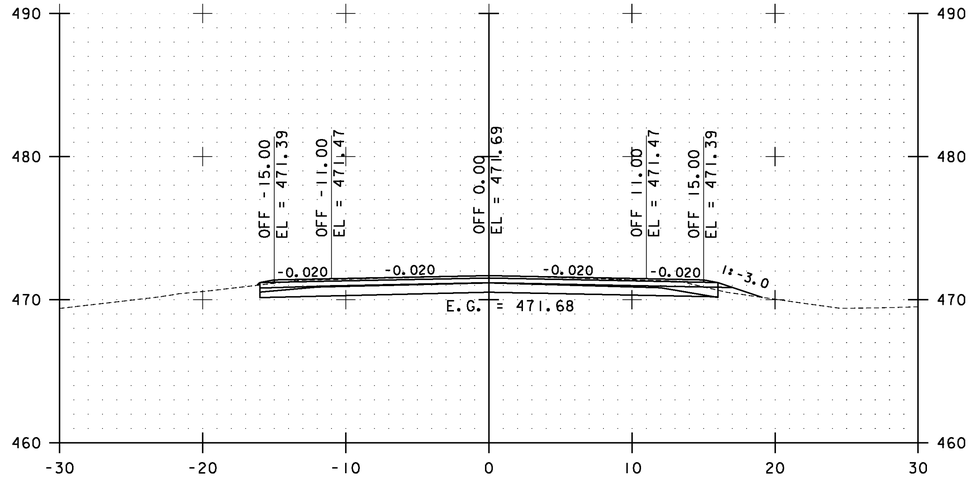
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs018.i

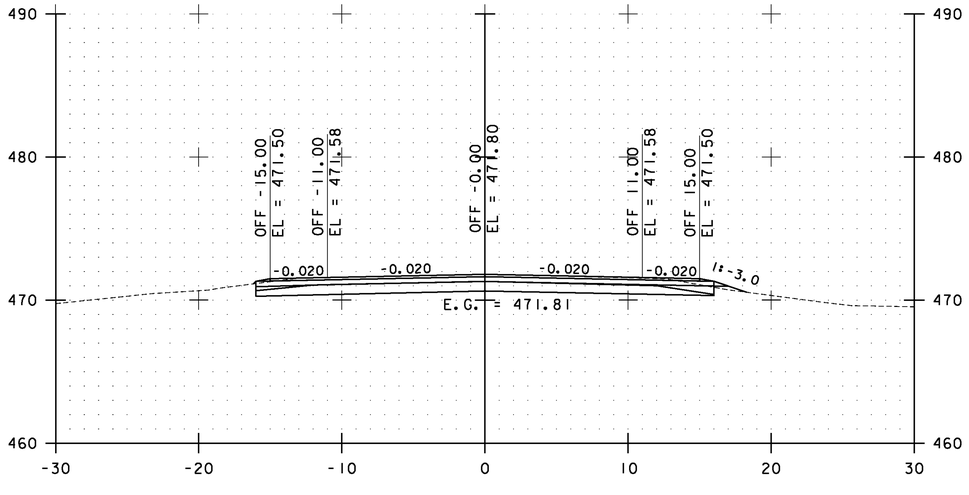
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 109 OF 239



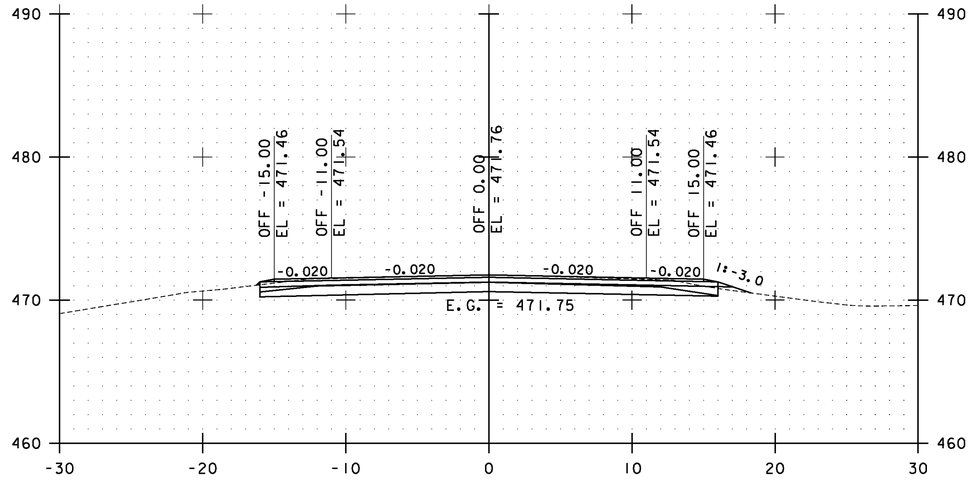
48+00.00



49+00.00



47+50.00



48+50.00

STA. 47+50.00 TO STA. 49+00.00

0 10 20
SCALE

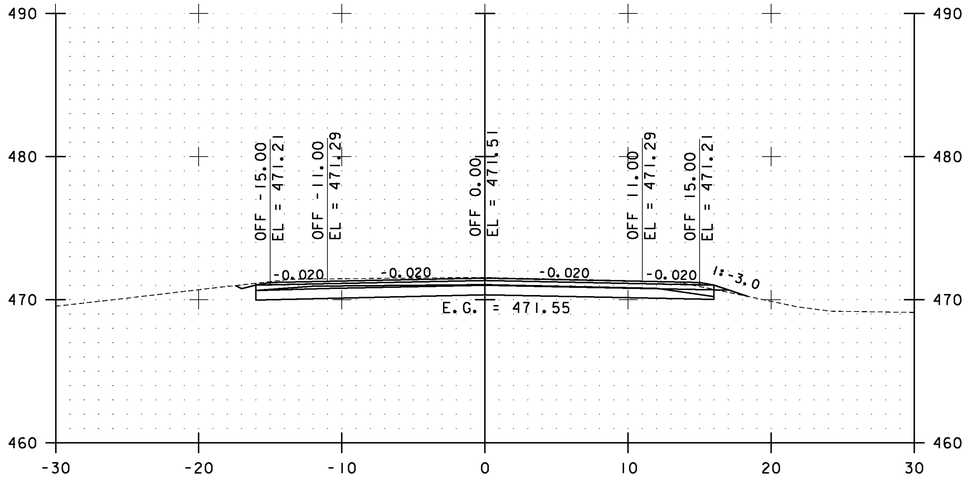
Stantec

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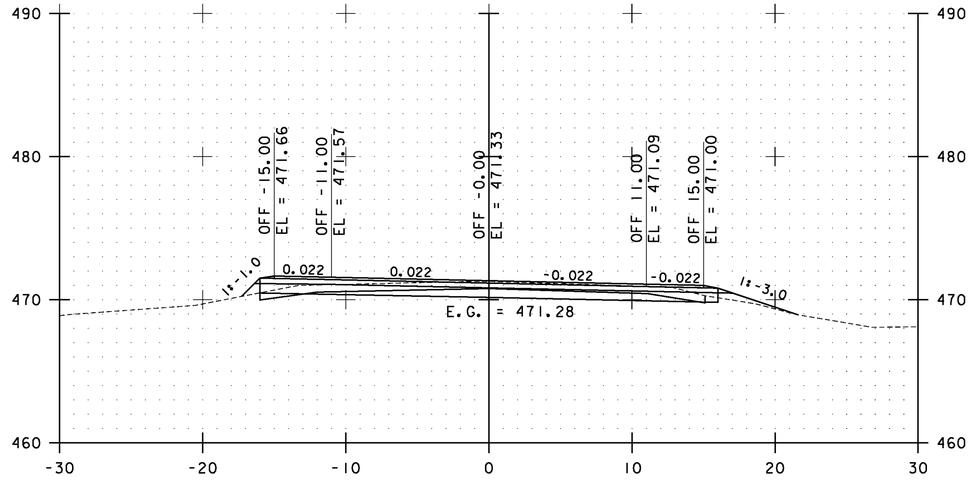
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs019.i

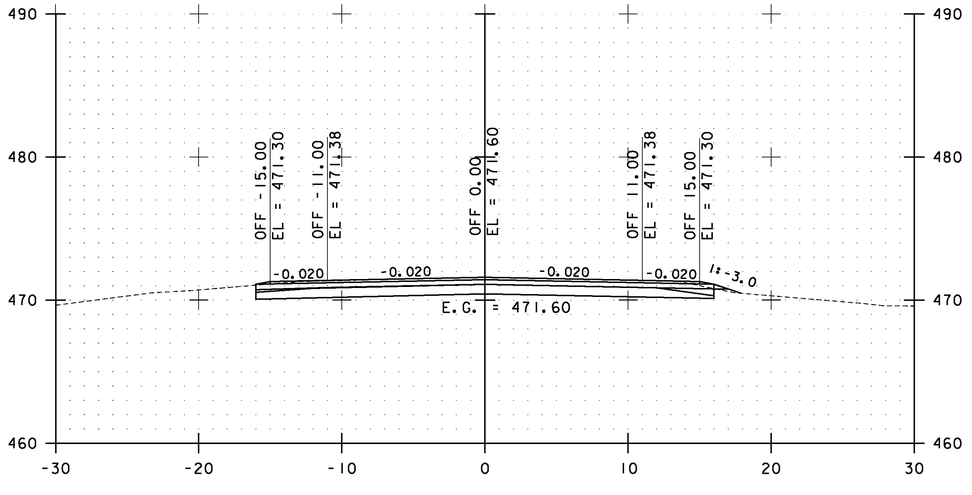
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 110 OF 239



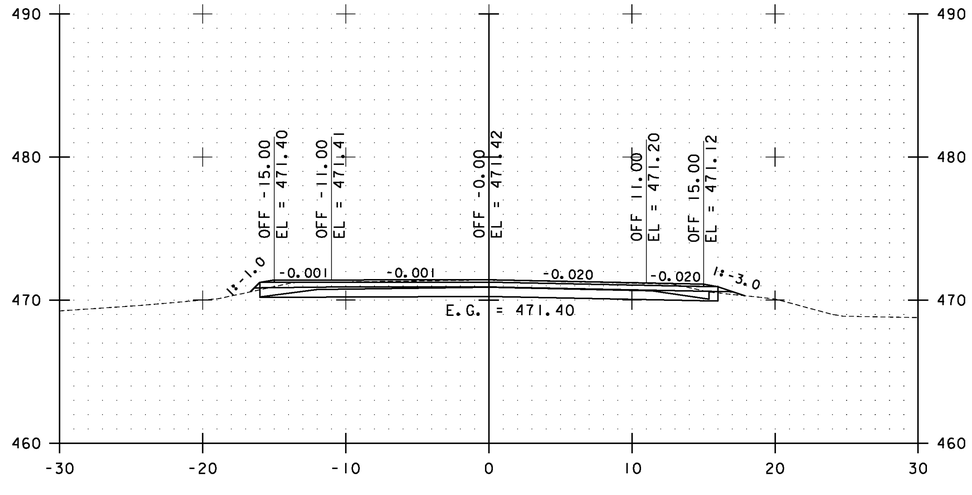
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51+00.00



49+50.00



50+50.00

STA. 49+50.00 TO STA. 51+00.00

0 10 20
SCALE

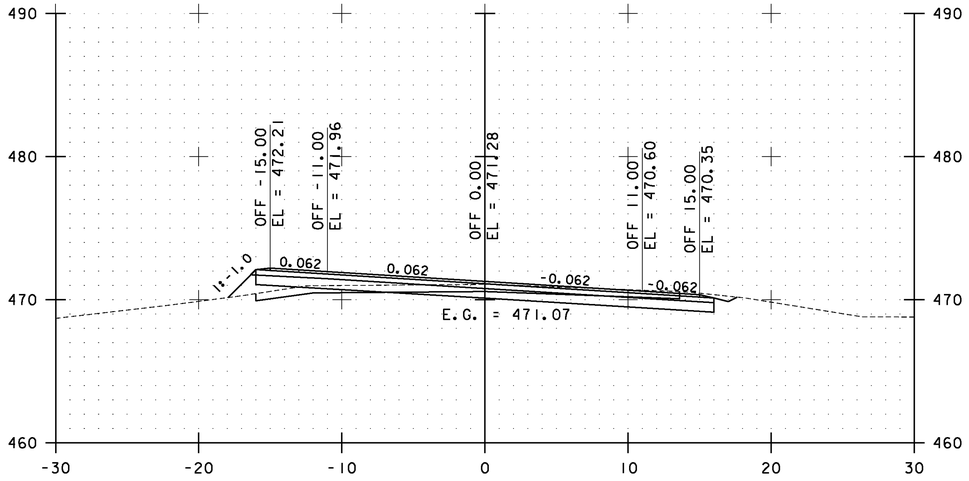
Stantec

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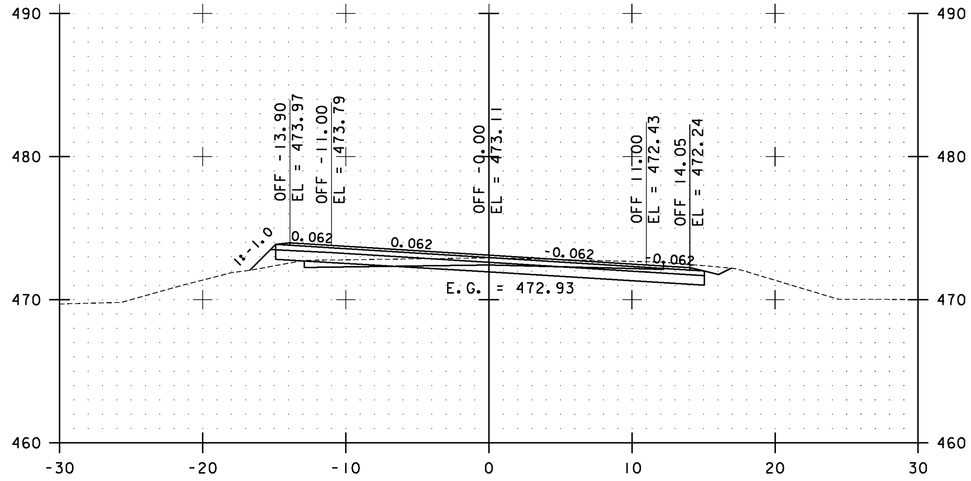
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs020.i

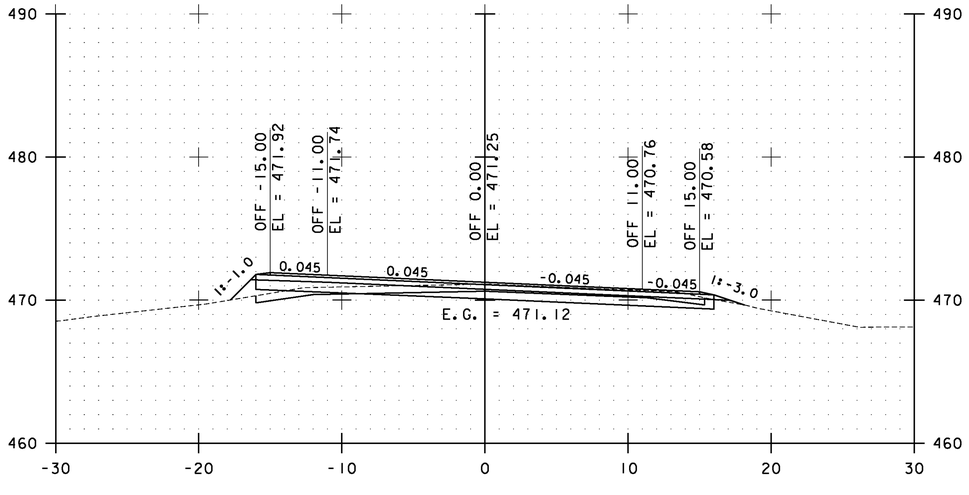
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET III OF 239



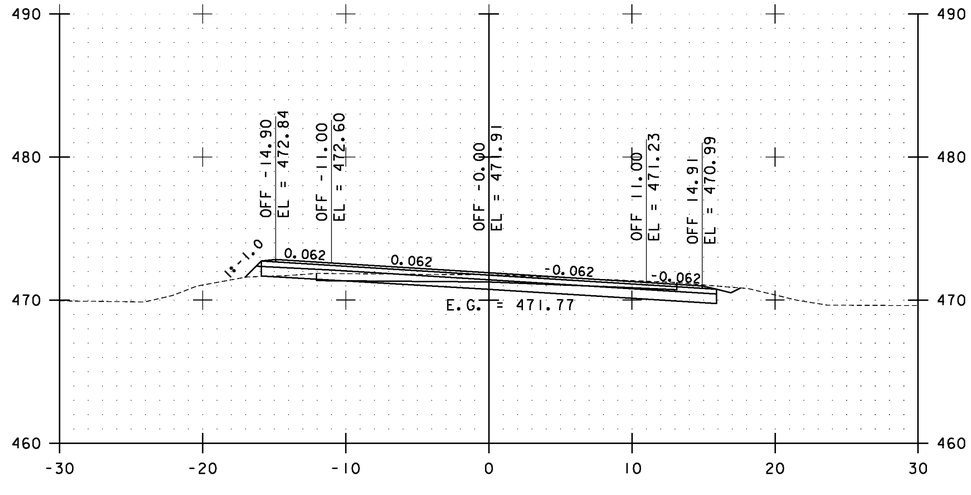
52+00.00



53+00.00



51+50.00



52+50.00

STA. 51+50.00 TO STA. 53+00.00

0 10 20
SCALE

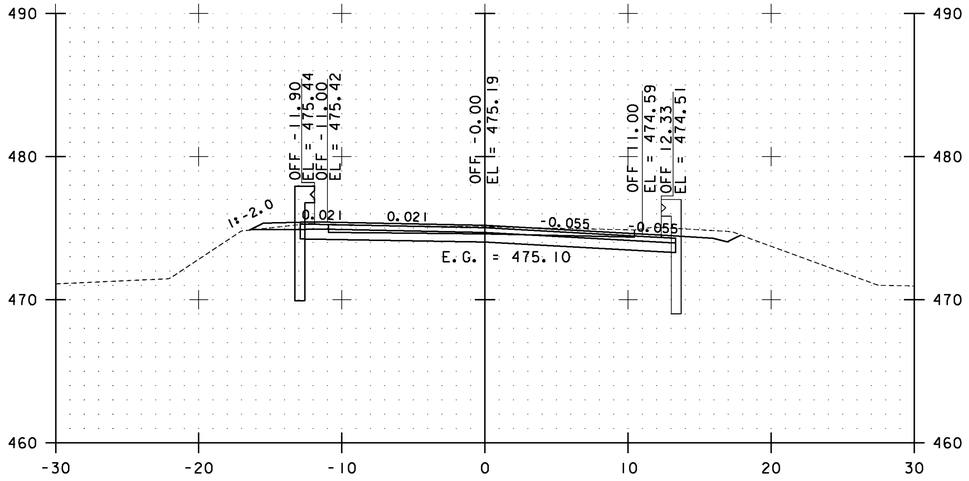
Stantec

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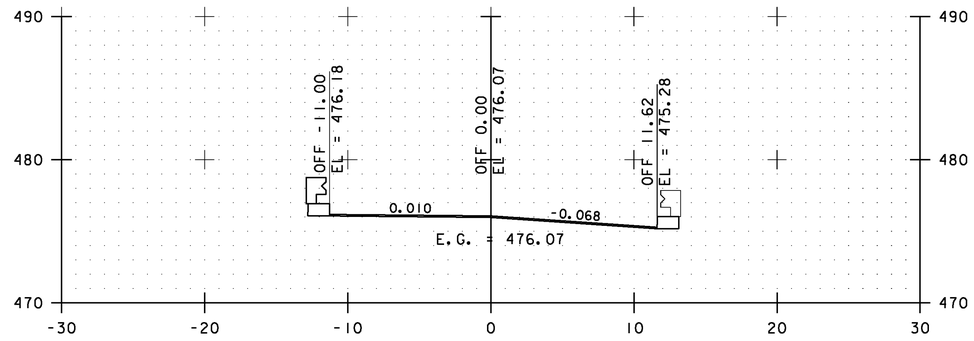
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs021.i

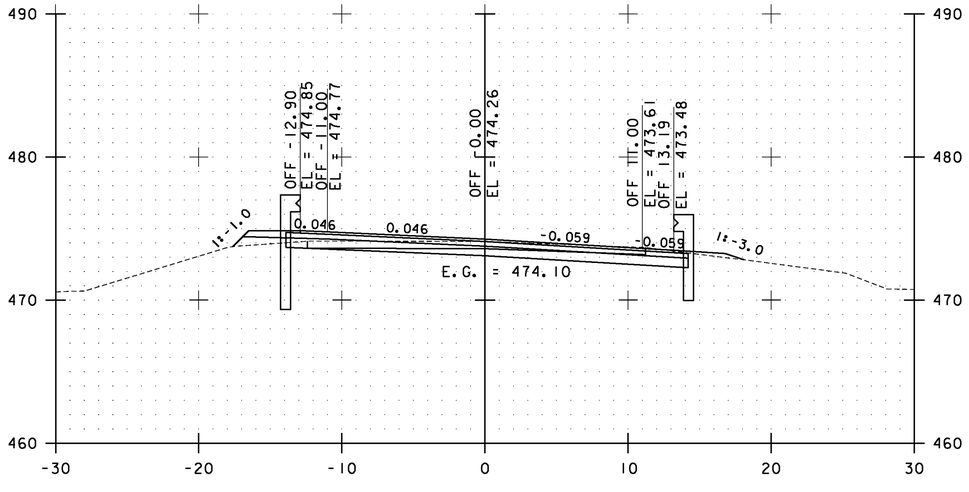
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 112 OF 239



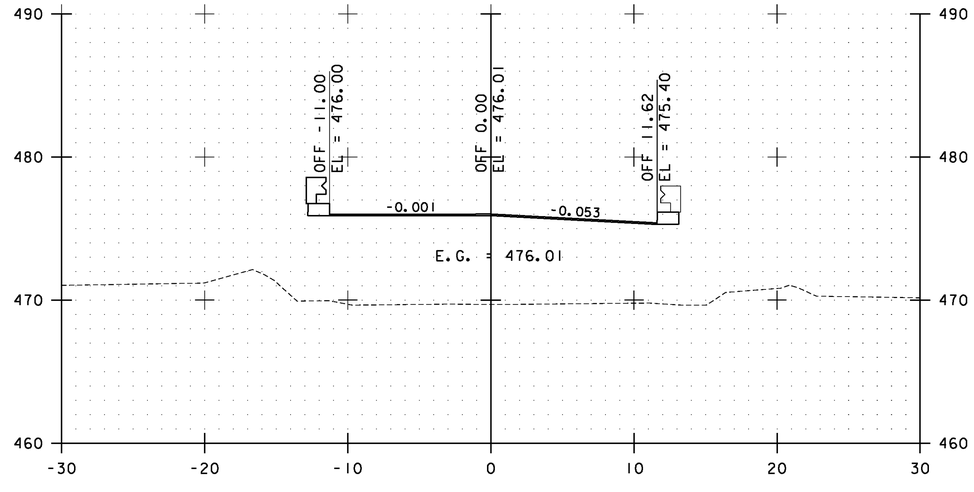
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55+00.00



53+50.00



54+50.00

STA. 53+50.00 TO STA. 55+00.00

0 10 20
SCALE

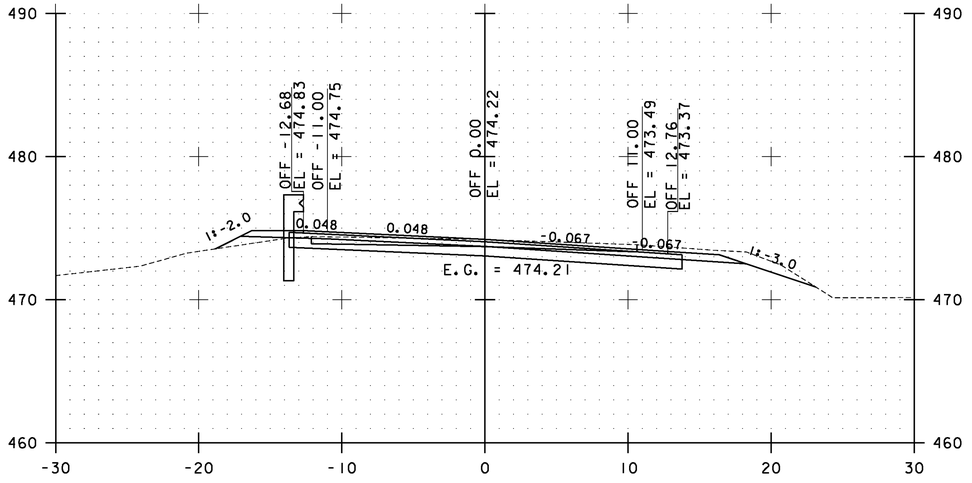
Stantec

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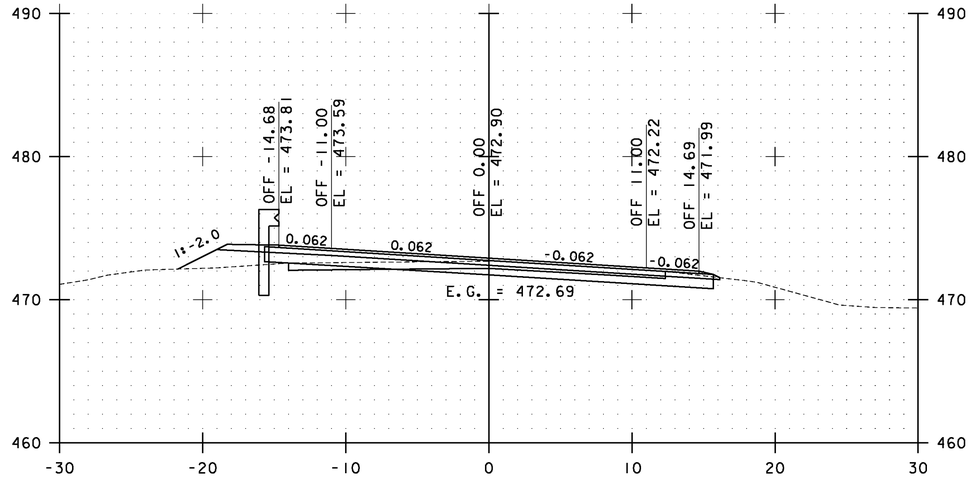
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs022.i

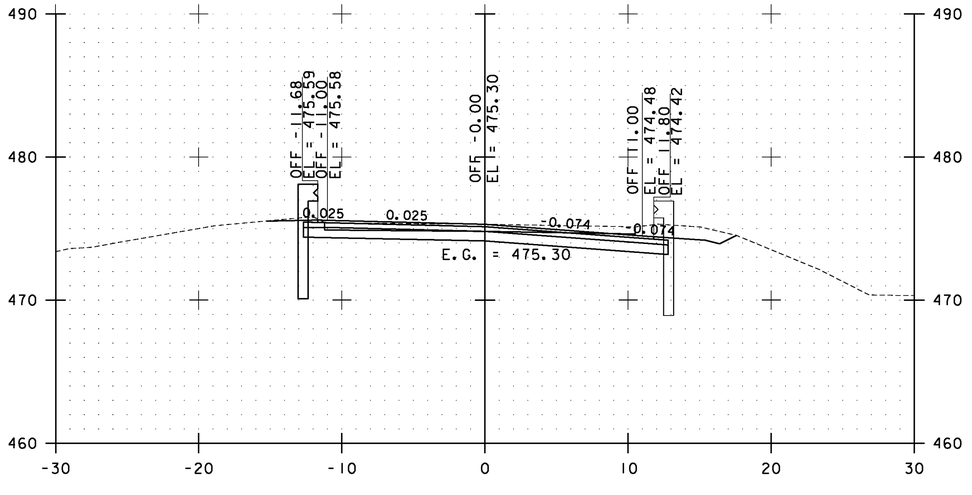
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 113 OF 239



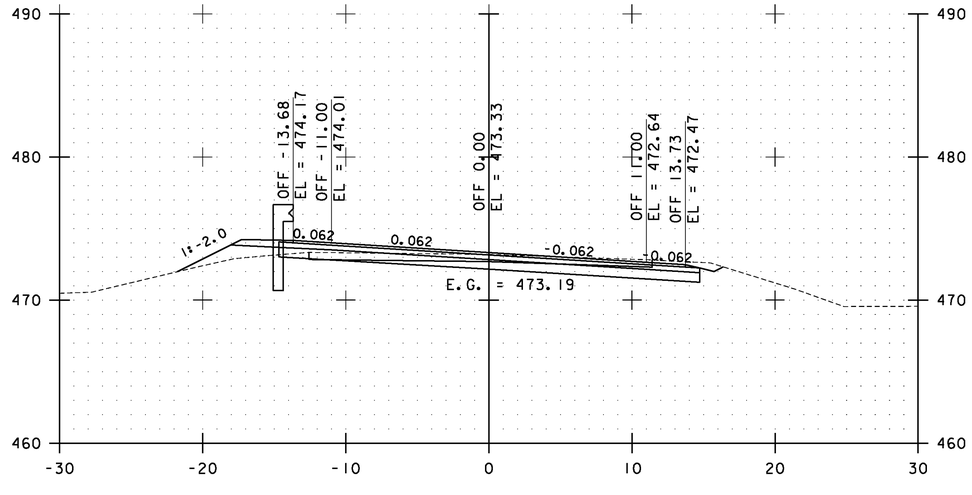
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57+00.00



55+50.00



56+50.00

STA. 55+50.00 TO STA. 57+00.00

0 10 20
SCALE

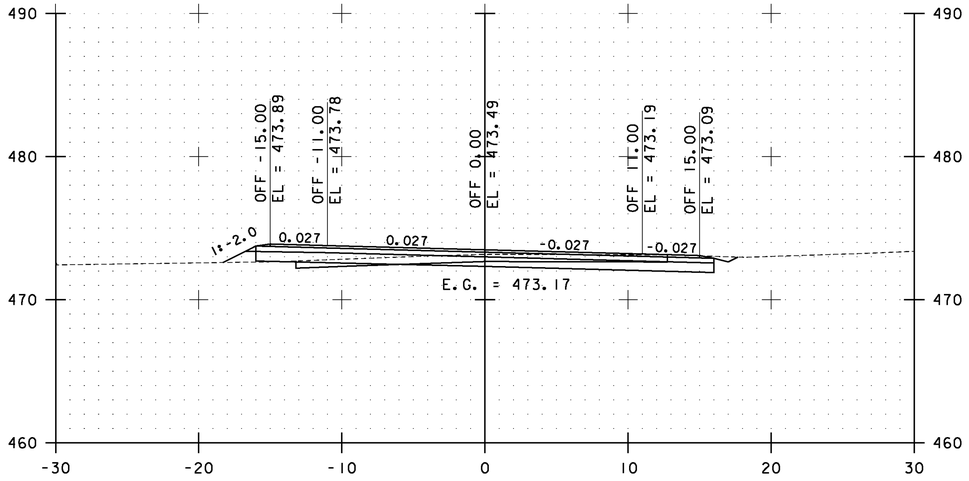
Stantec

ESSEX CROSS SECTIONS SHEET #23

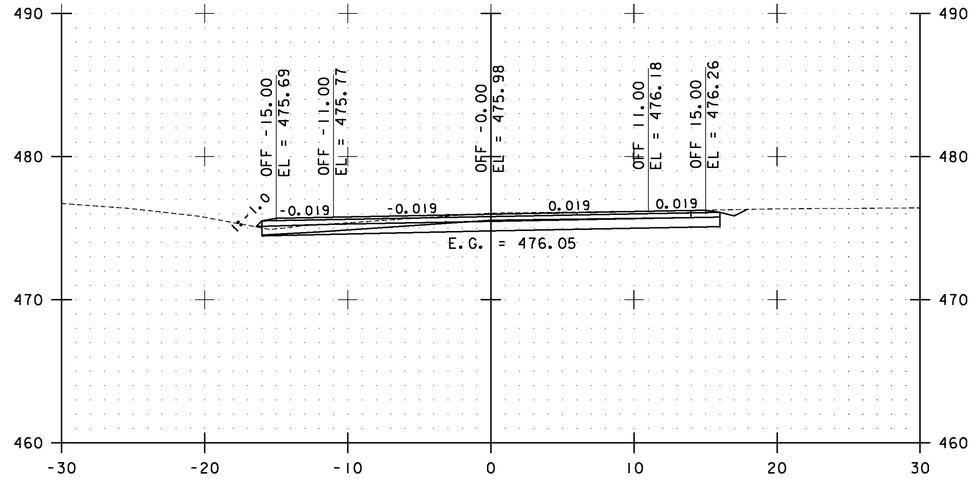
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs023.i

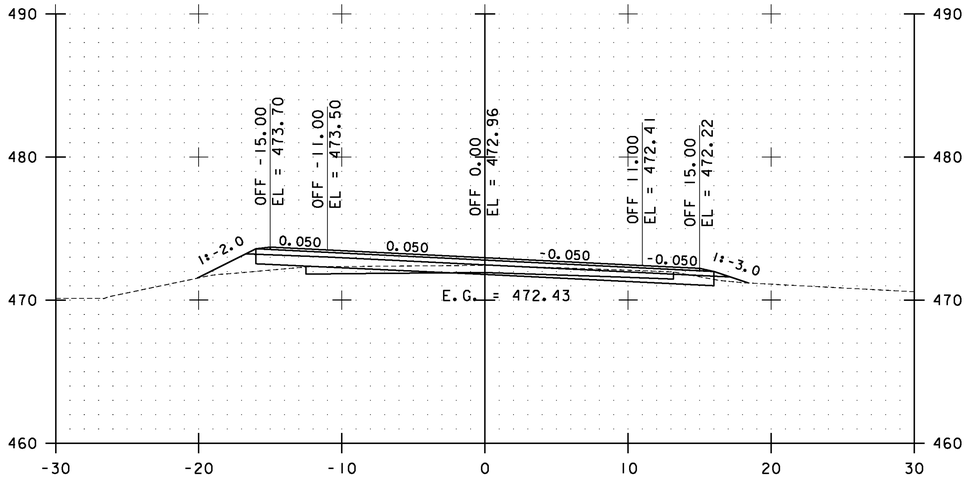
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 114 OF 239



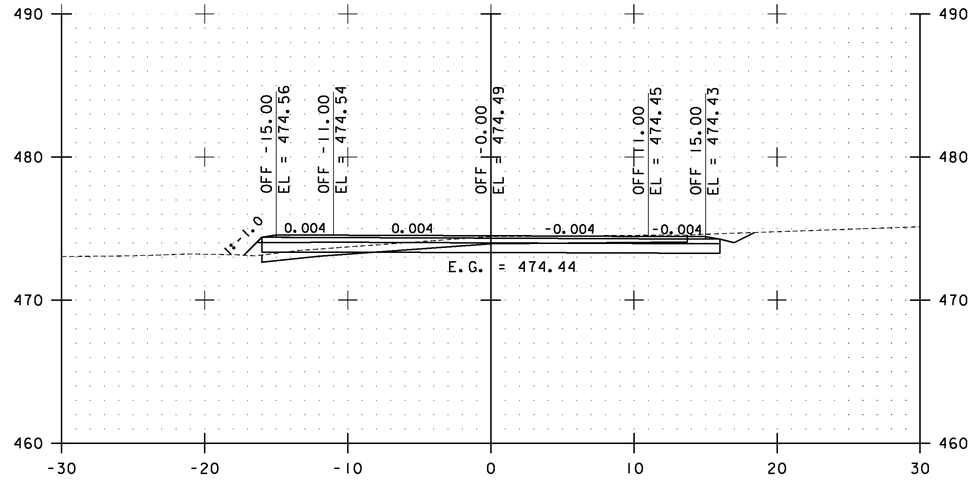
58+00.00



59+00.00



57+50.00



58+50.00

STA. 57+50.00 TO STA. 59+00.00

0 10 20
SCALE

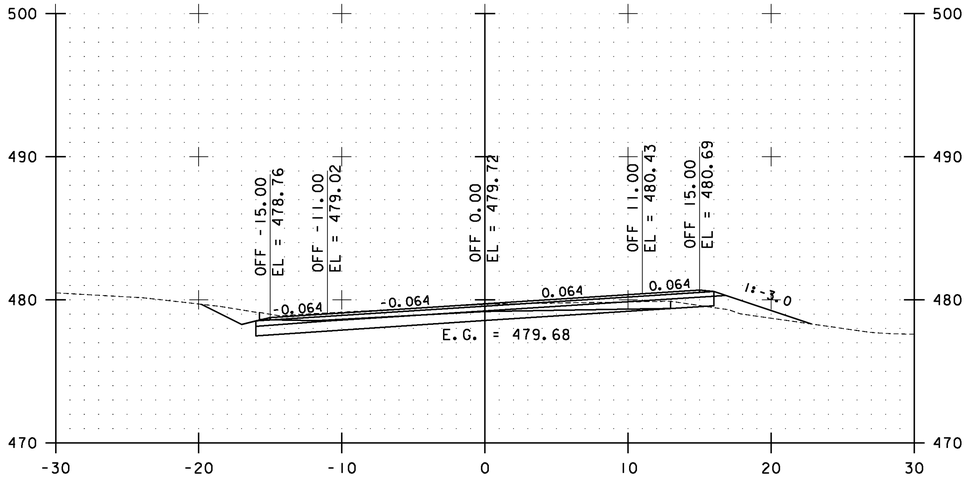
Stantec

ESSEX CROSS SECTIONS SHEET #24

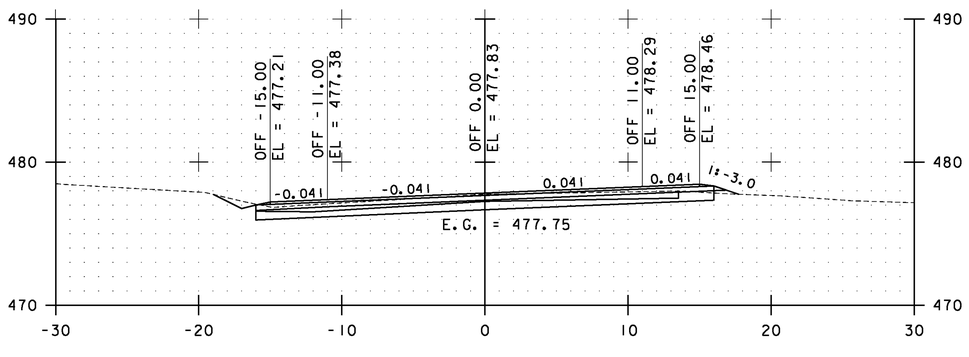
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs024.i

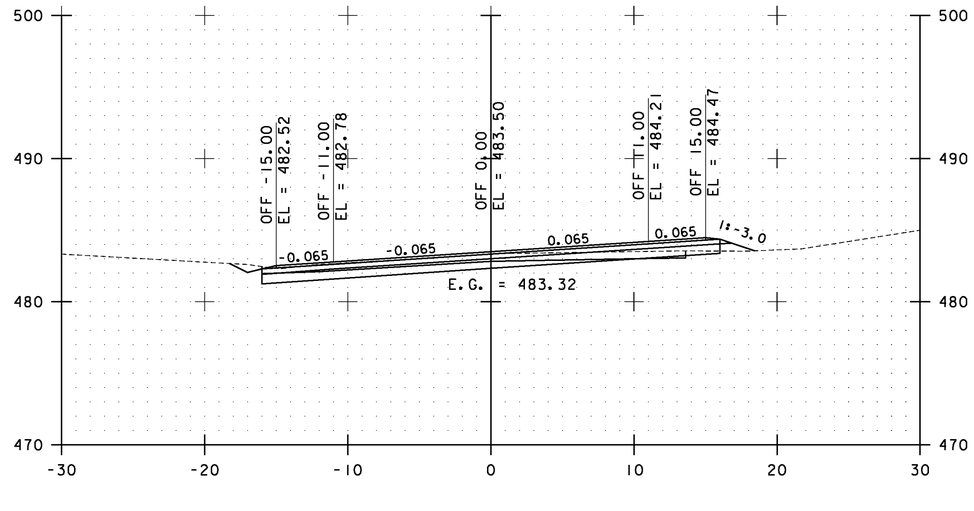
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 115 OF 239



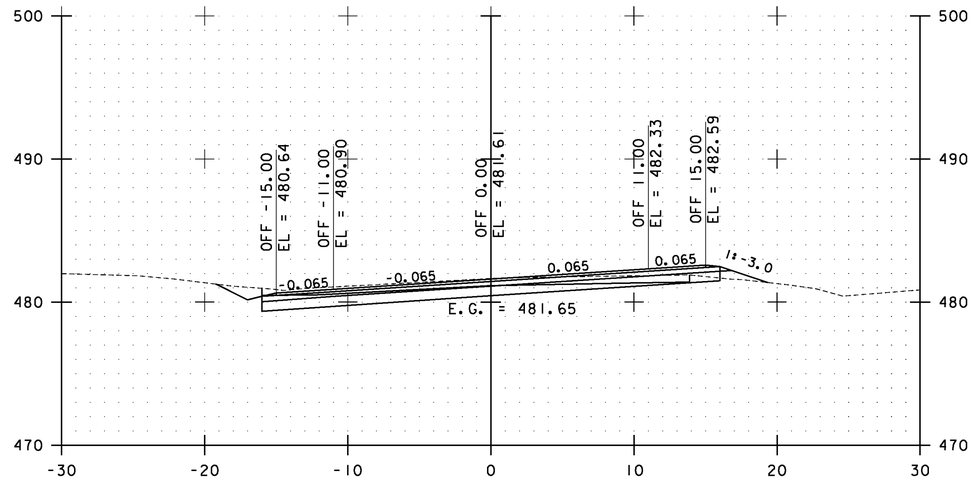
60+00.00



59+50.00



61+00.00



60+50.00

STA. 59+50.00 TO STA. 61+00.00

0 10 20
SCALE

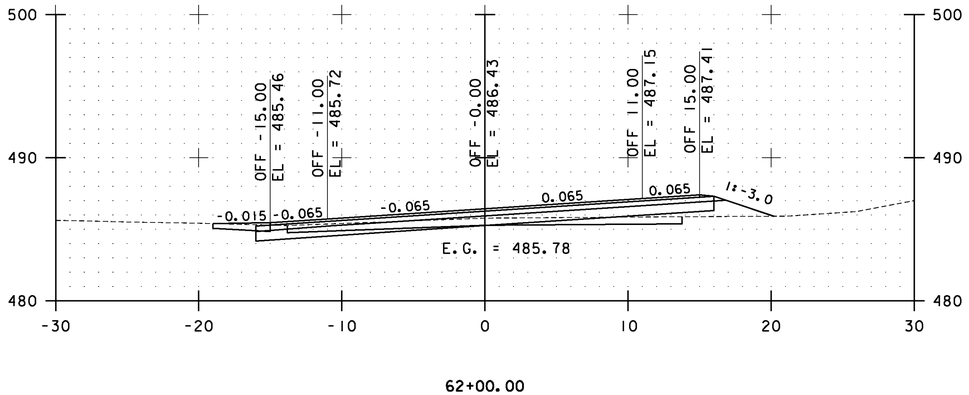
Stantec

ESSEX CROSS SECTIONS SHEET #25

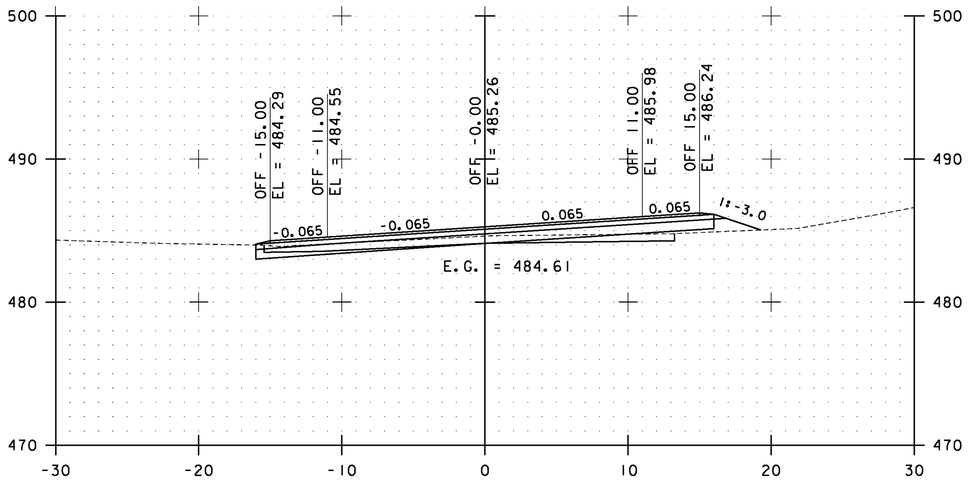
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs025.i

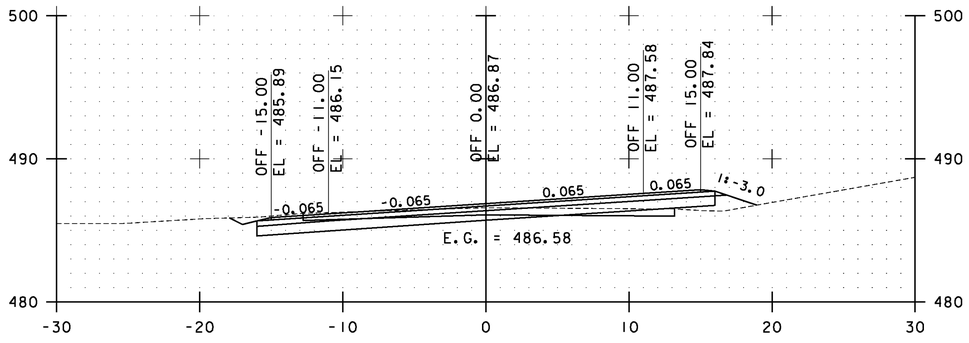
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 116 OF 239



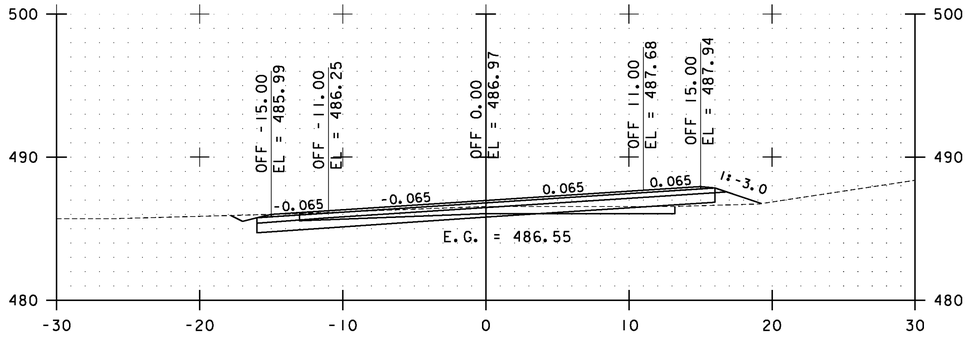
62+00.00



61+50.00



63+00.00



62+50.00

STA. 61+50.00 TO STA. 63+00.00

0 10 20
SCALE

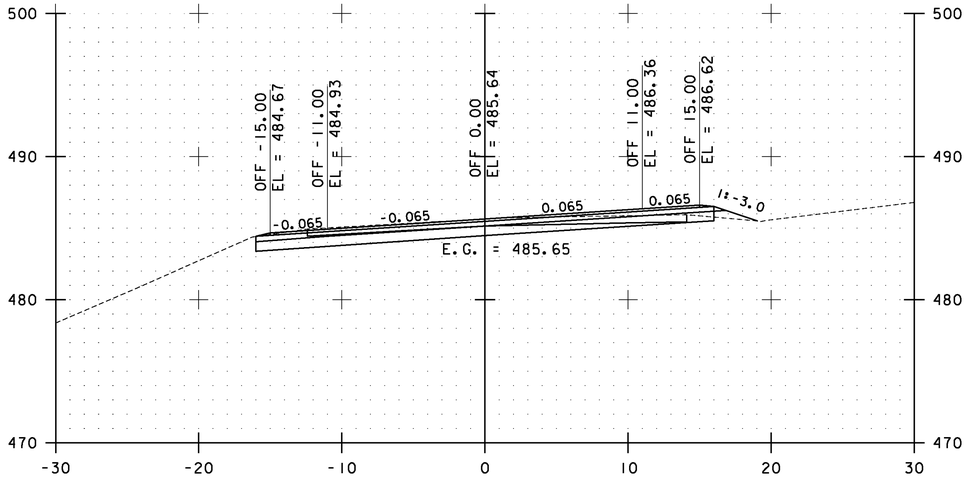
Stantec

ESSEX CROSS SECTIONS SHEET #26

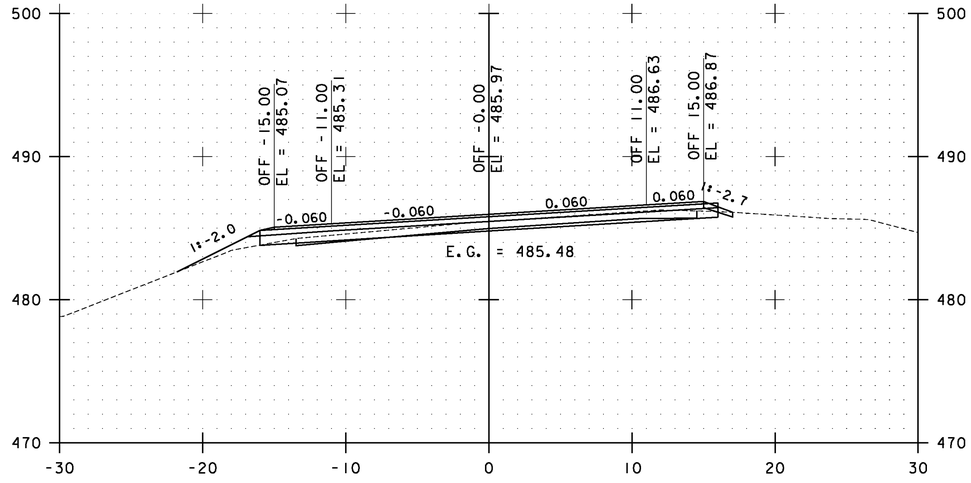
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs026.i

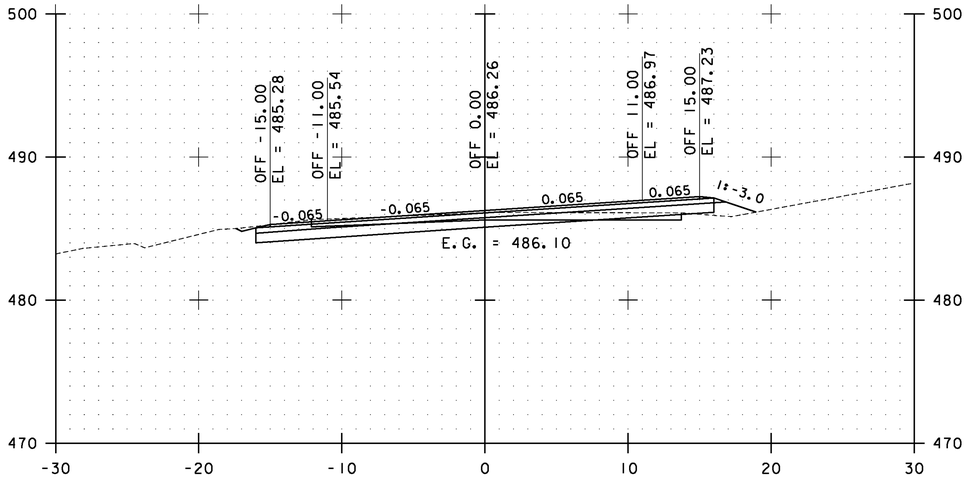
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 117 OF 239



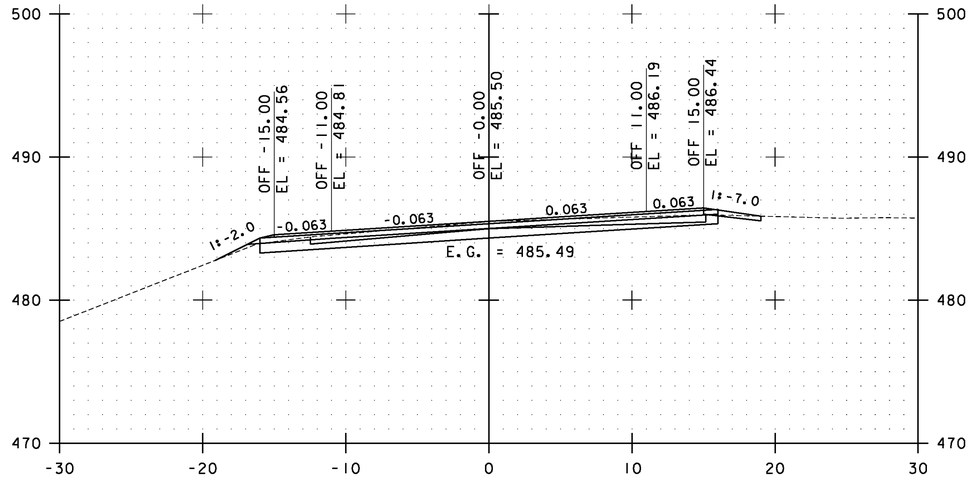
64+00.00



65+00.00



63+50.00



64+50.00

STA. 63+50.00 TO STA. 65+00.00

0 10 20
SCALE

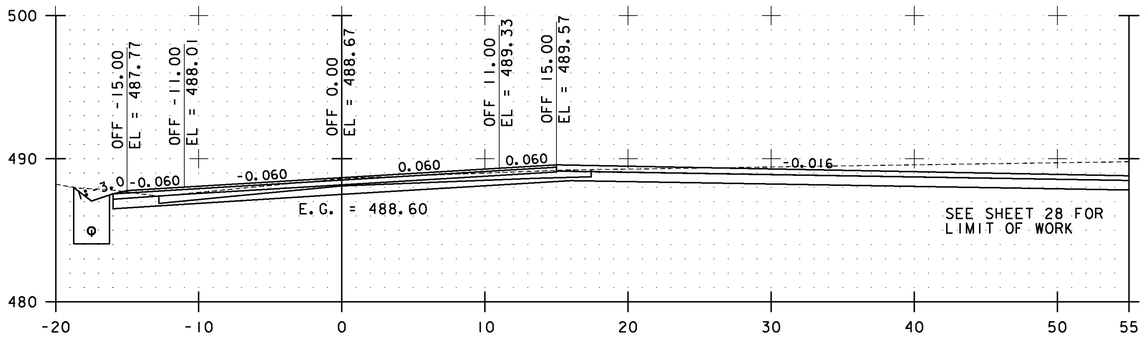
Stantec

ESSEX CROSS SECTIONS SHEET #27

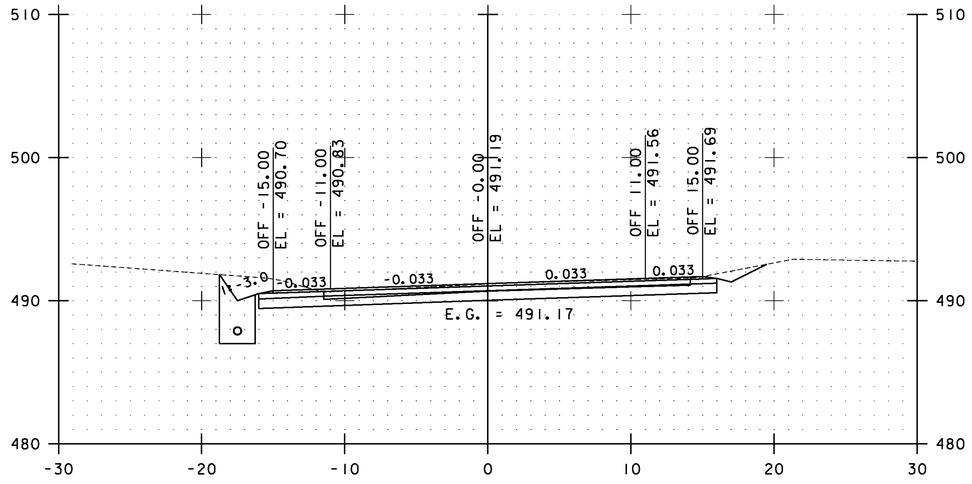
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs027.i

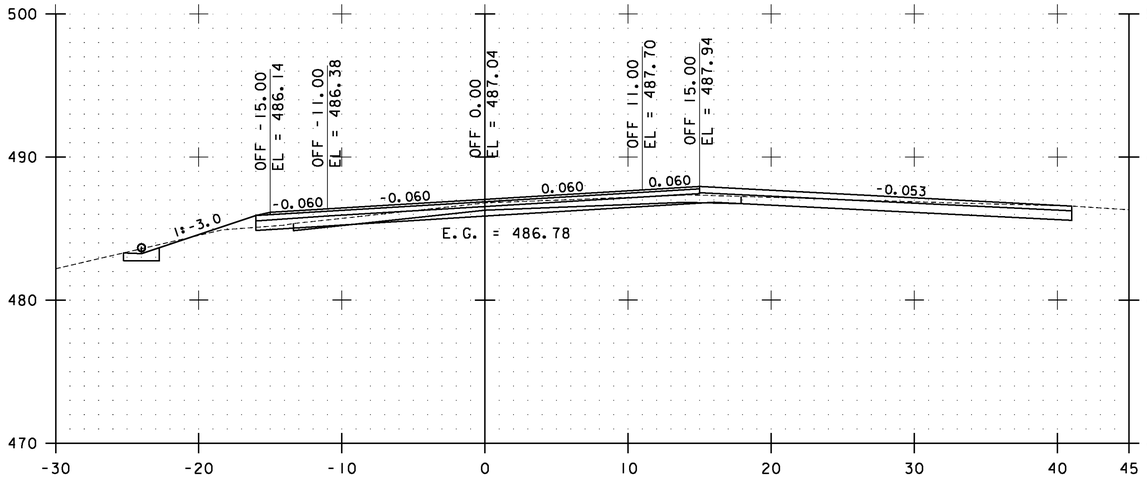
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 118 OF 239



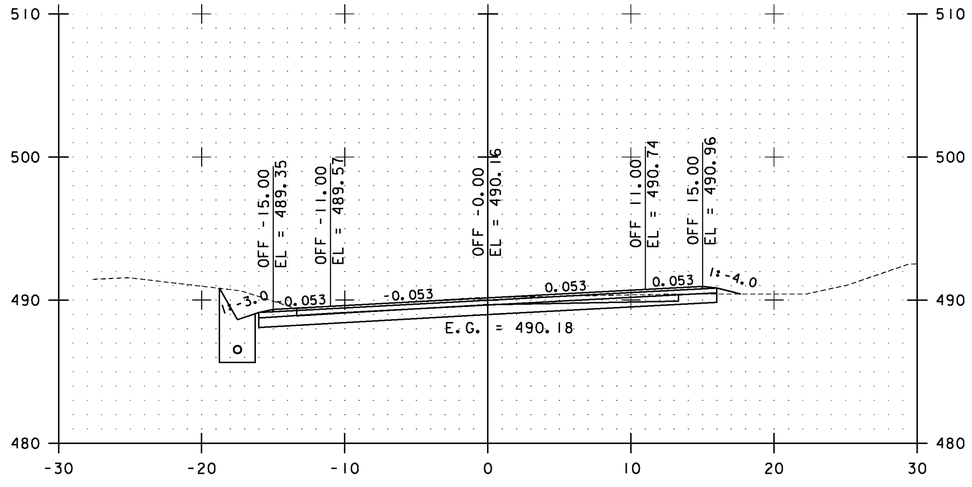
66+00.00



67+00.00



65+50.00



66+50.00

STA. 65+50.00 TO STA. 67+00.00

0 10 20
SCALE

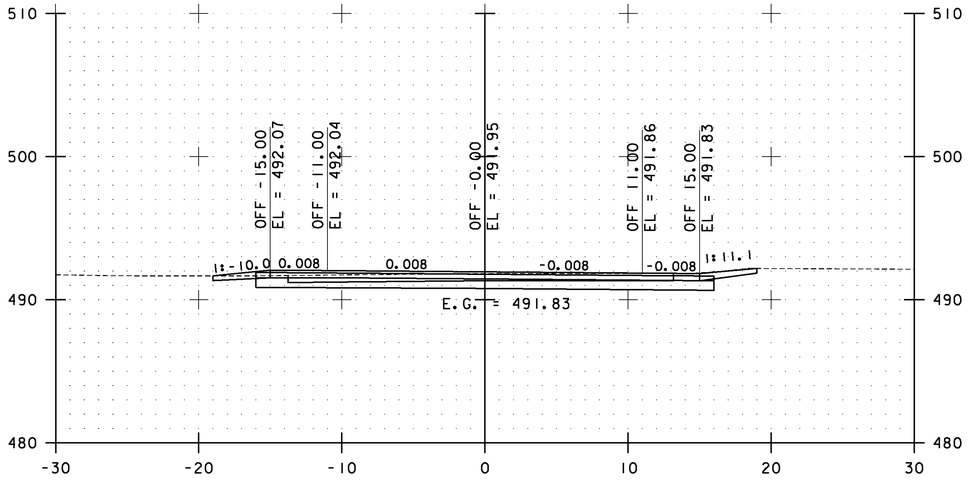
Stantec

ESSEX CROSS SECTIONS SHEET #28

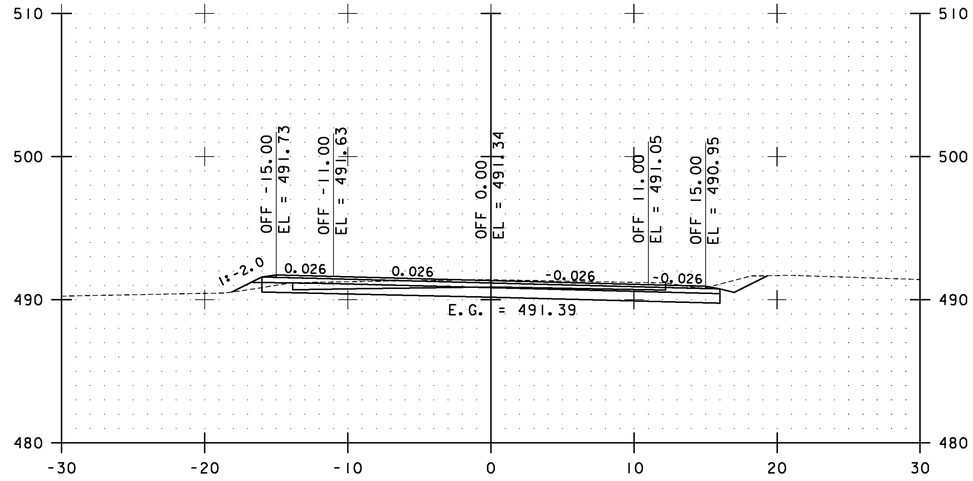
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs028.i

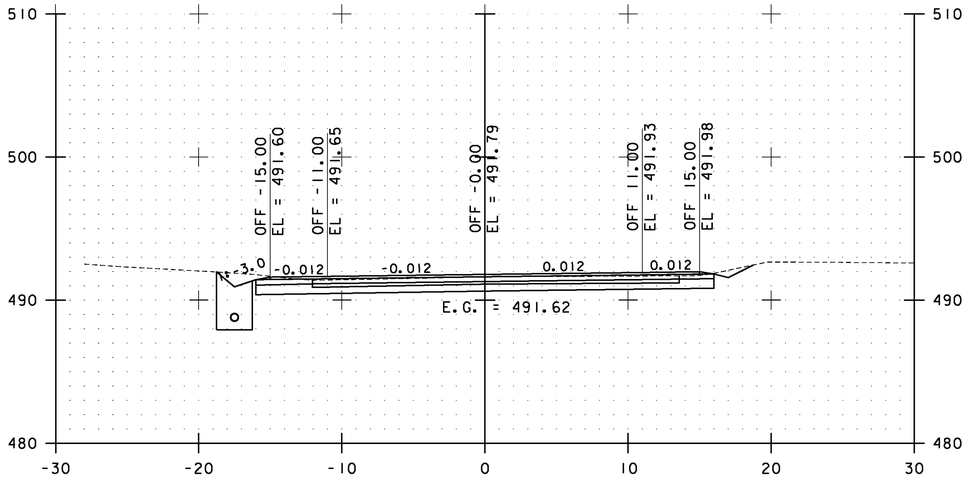
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 119 OF 239



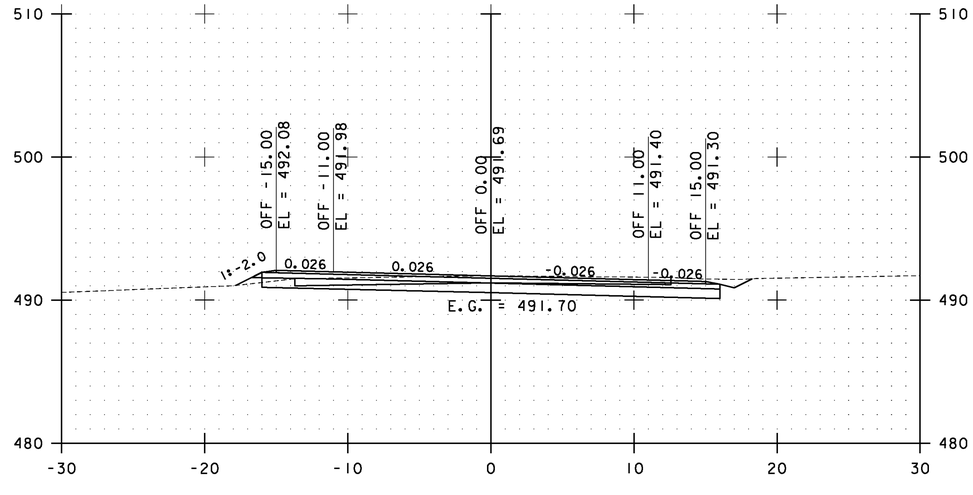
68+00.00



69+00.00



67+50.00



68+50.00

STA. 67+50.00 TO STA. 69+00.00

0 10 20
SCALE

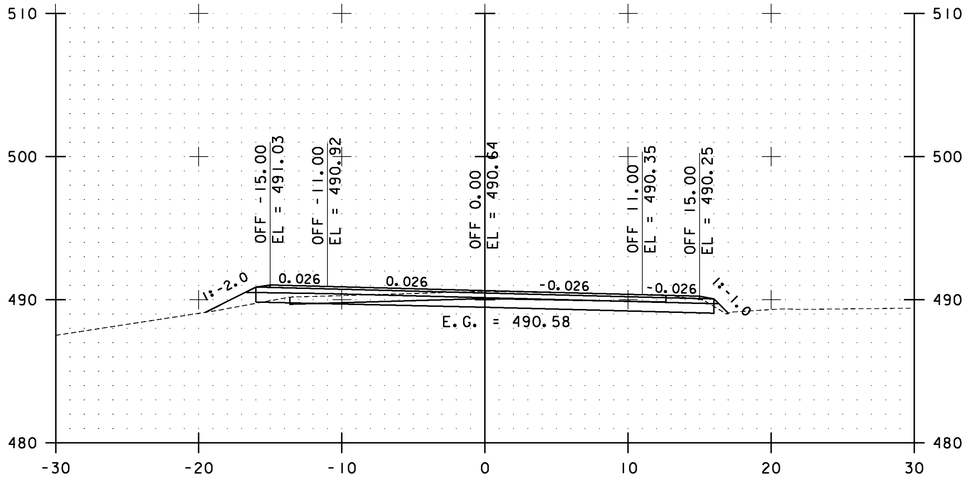
Stantec

ESSEX CROSS SECTIONS SHEET #29

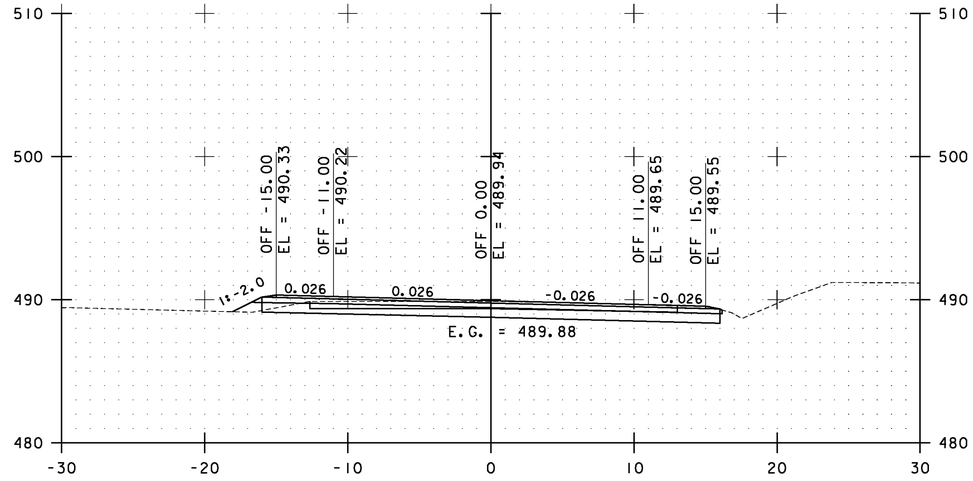
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs029.i

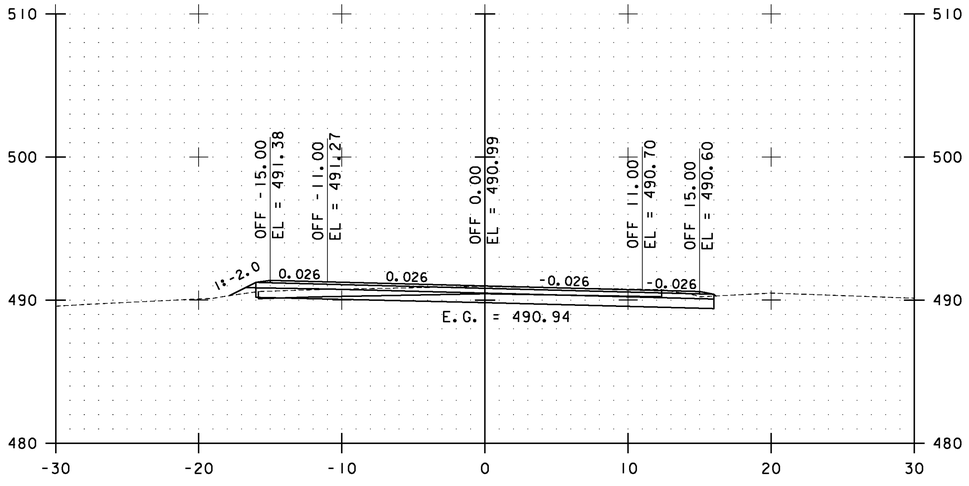
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 120 OF 239



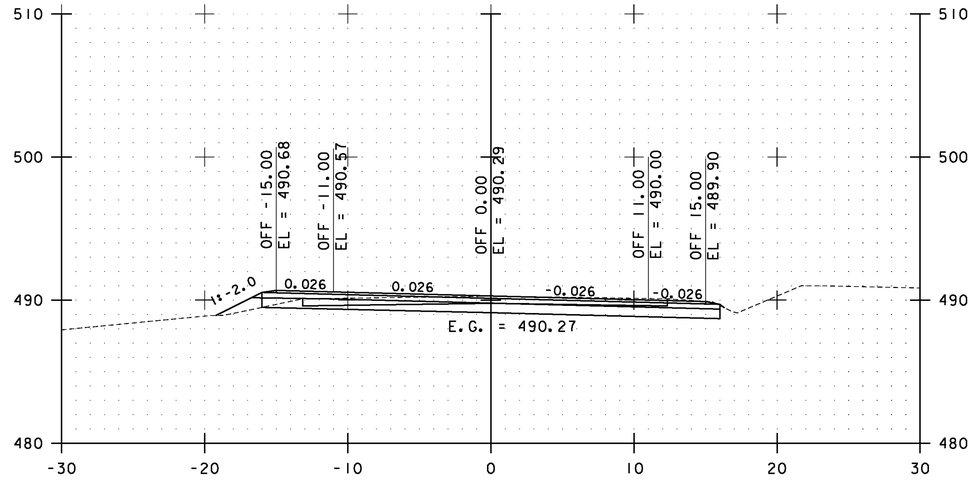
70+00.00



71+00.00



69+50.00



70+50.00

STA. 69+50.00 TO STA. 71+00.00

0 10 20
SCALE

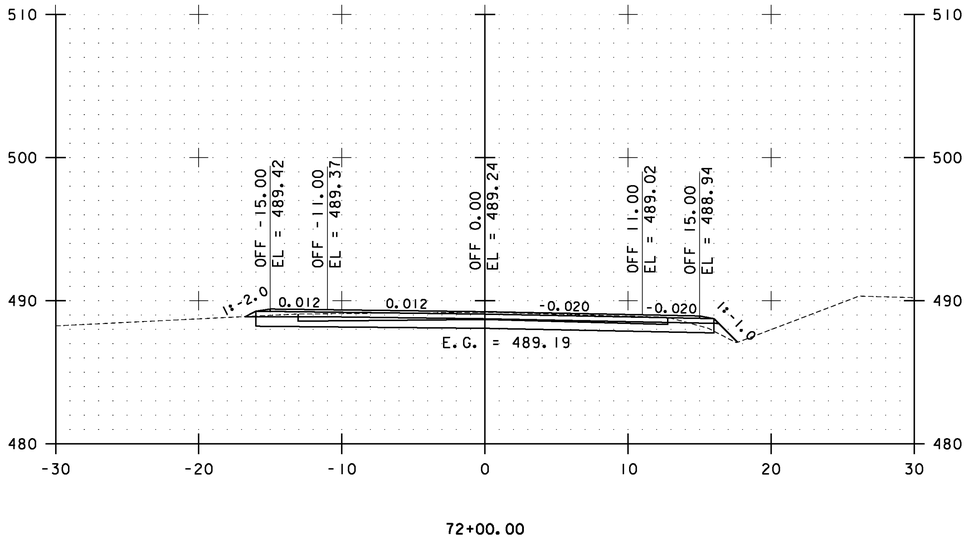
Stantec

ESSEX CROSS SECTIONS SHEET #30

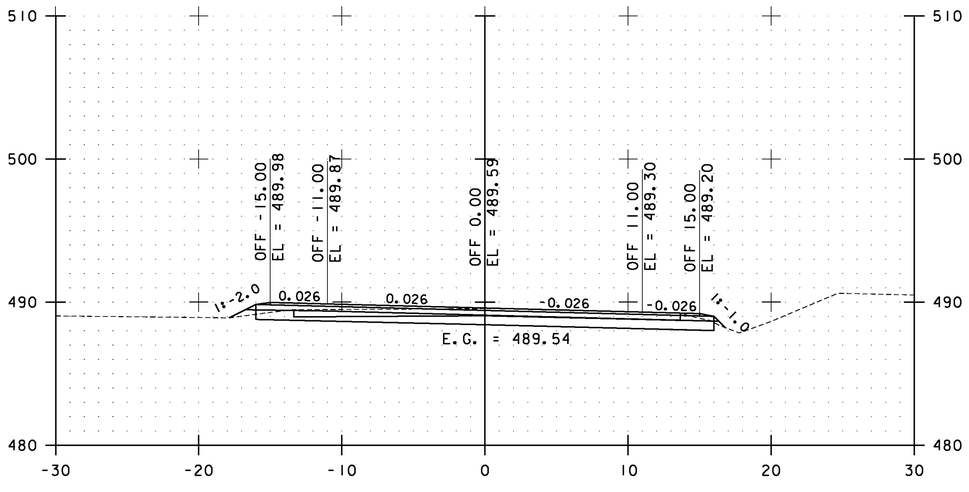
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs030.i

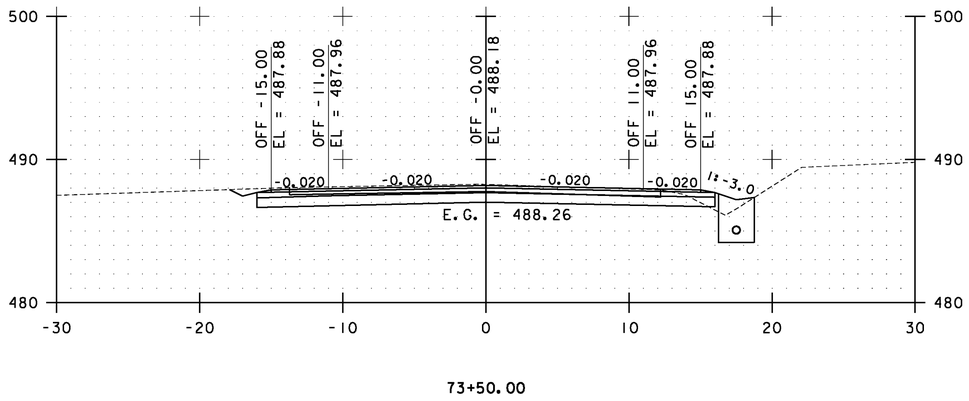
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 121 OF 239



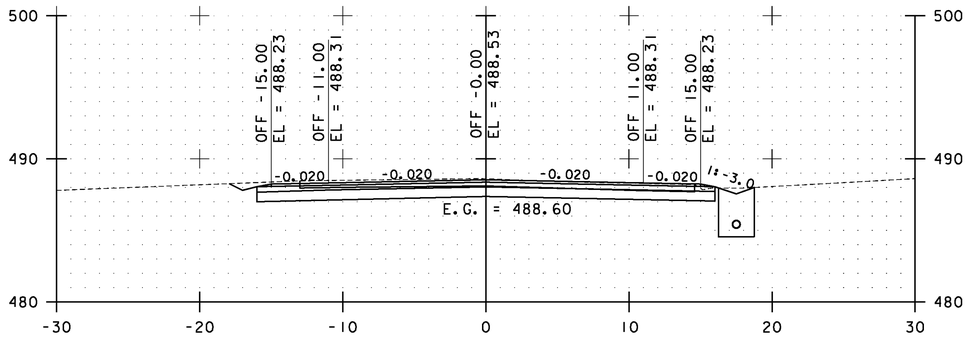
72+00.00



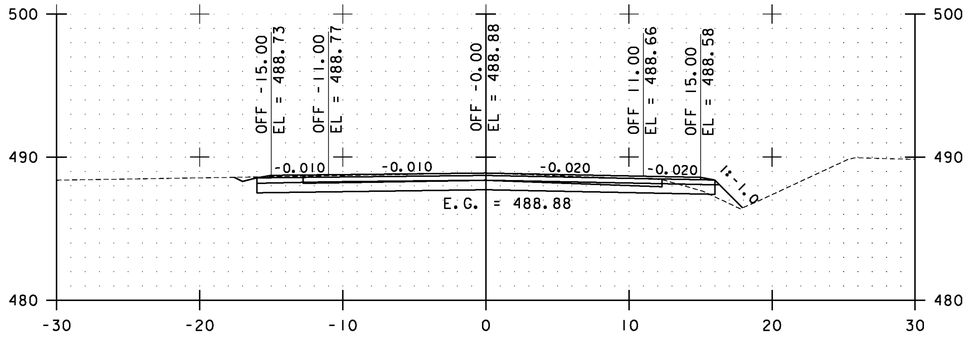
71+50.00



73+50.00



73+00.00



72+50.00

STA. 71+50.00 TO STA. 73+50.00

0 10 20
SCALE

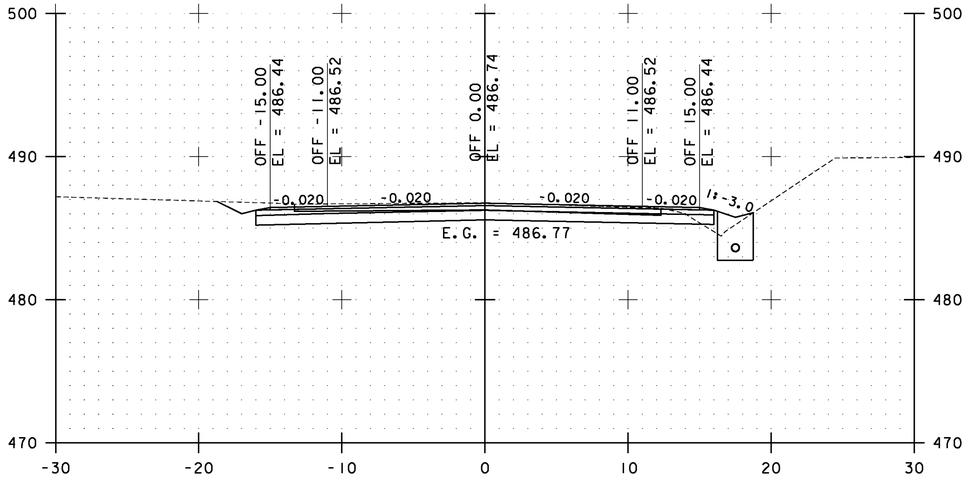
Stantec

ESSEX CROSS SECTIONS SHEET #31

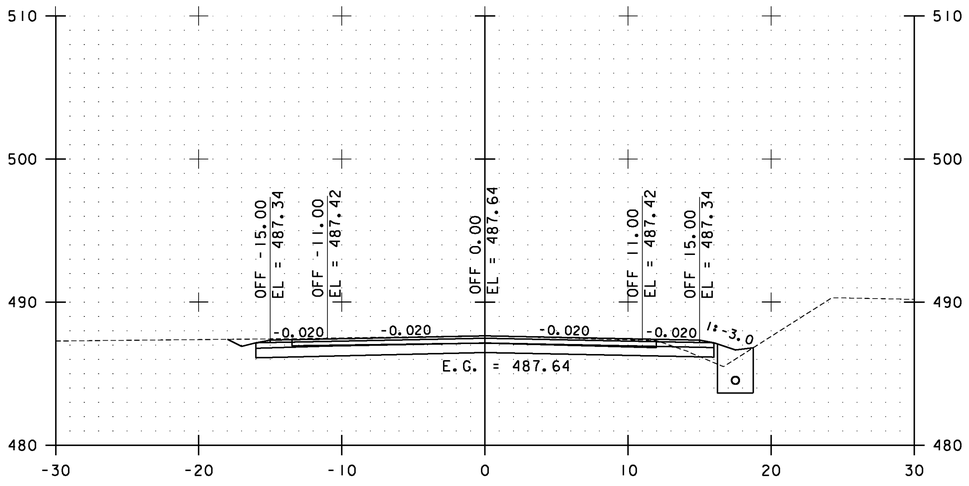
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs031.i

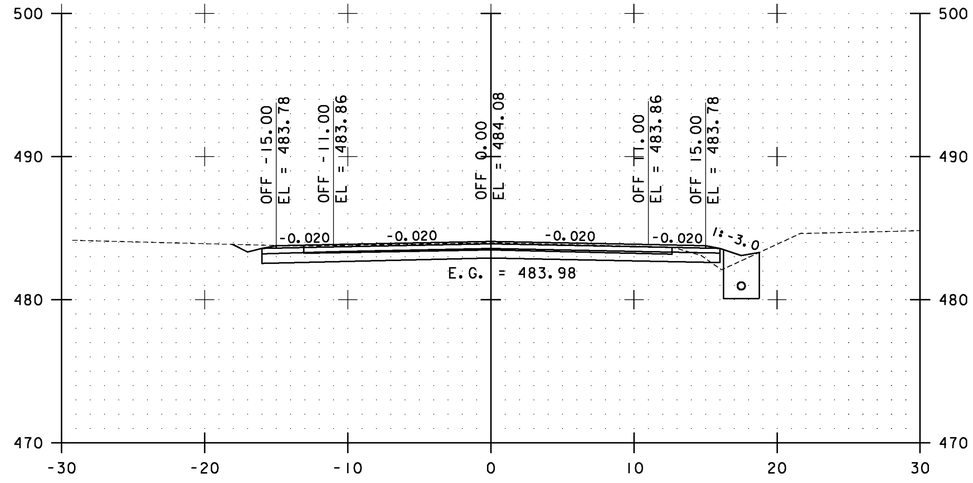
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 122 OF 239



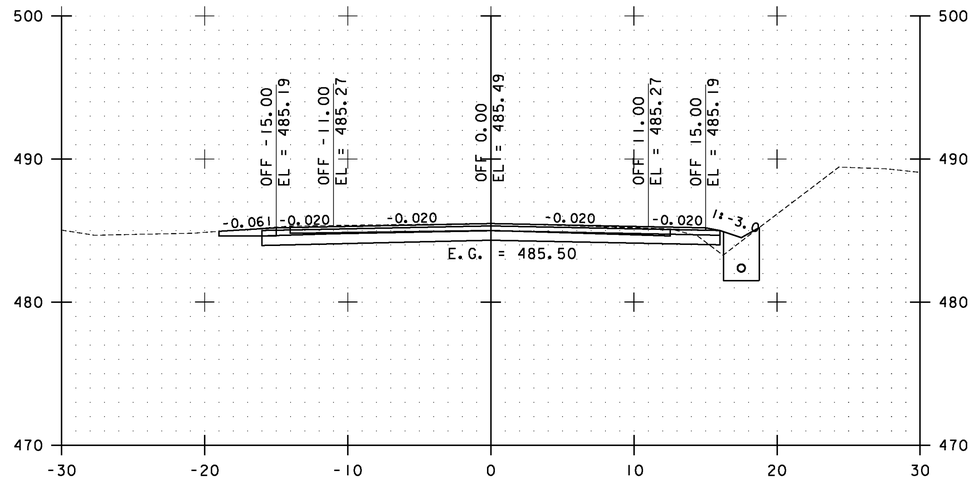
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74+00.00



75+50.00



75+00.00

STA. 74+00.00 TO STA. 75+50.00

0 10 20

SCALE

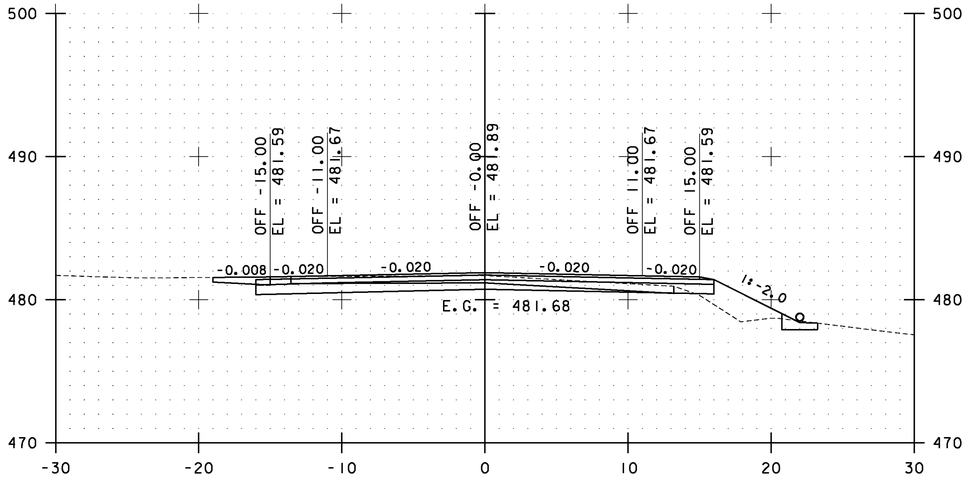
Stantec

ESSEX CROSS SECTIONS SHEET #32

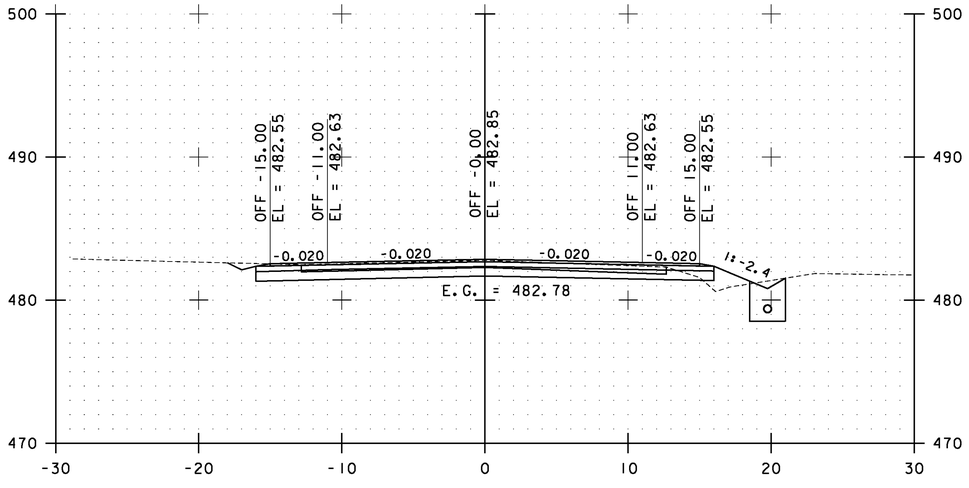
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs032.i

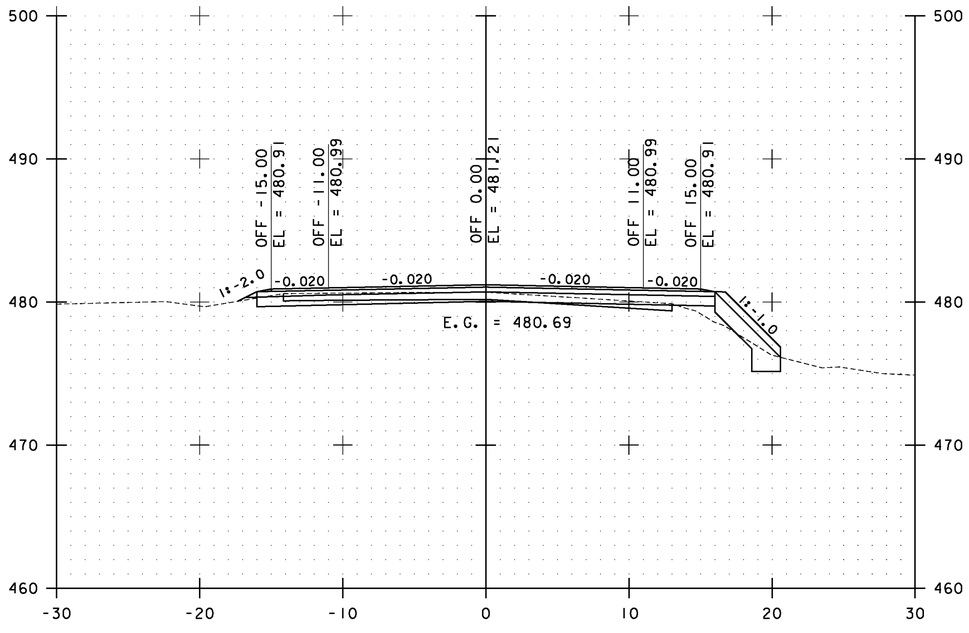
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 123 OF 239



76+50.00



76+00.00



77+00.00

STA. 76+00.00 TO STA. 77+00.00

0 10 20
SCALE

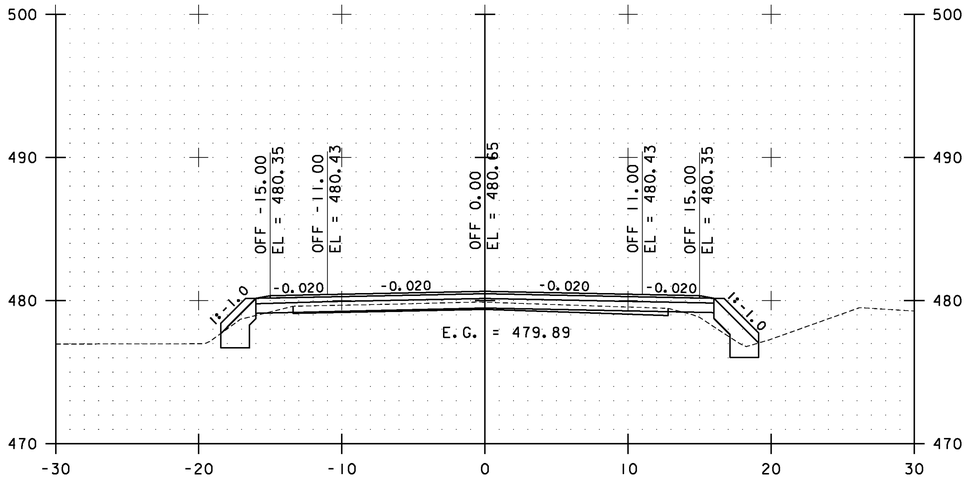
Stantec

ESSEX CROSS SECTIONS SHEET #33

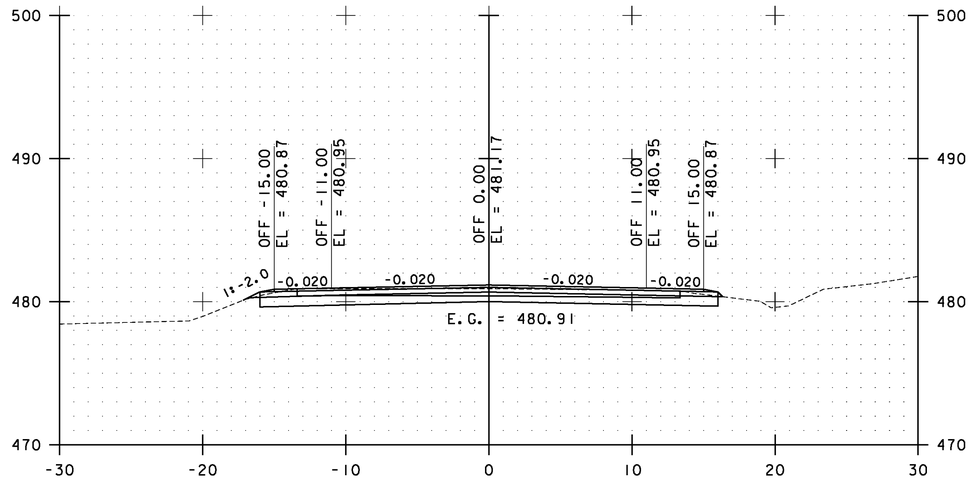
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs033.i

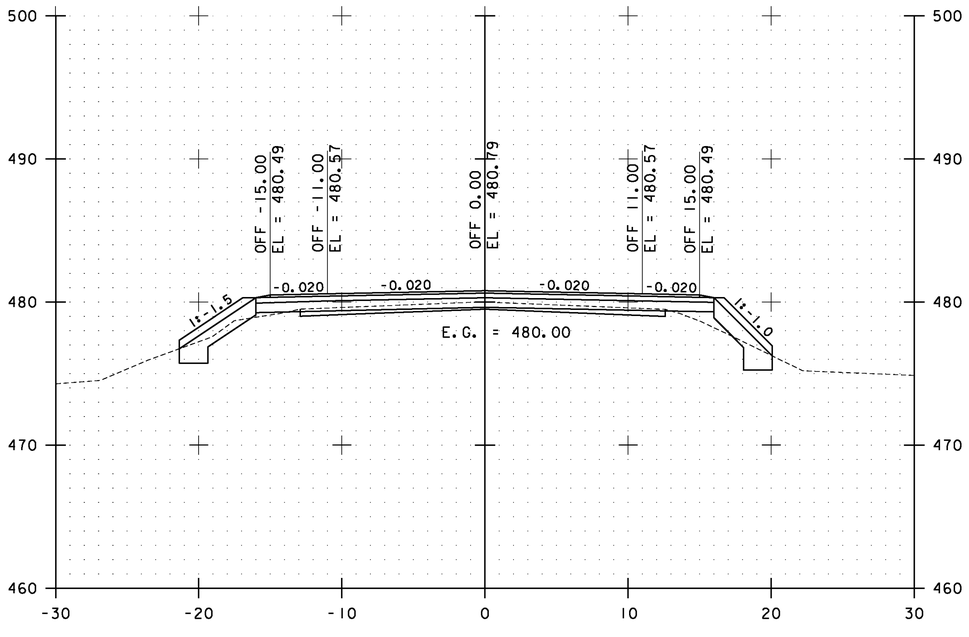
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 124 OF 239



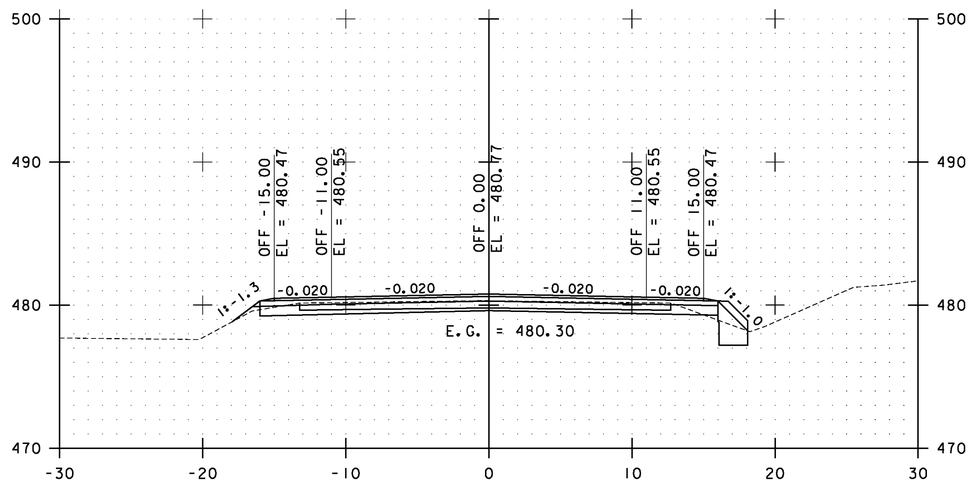
78+00.00



79+00.00



77+50.00



78+50.00

STA. 77+50.00 TO STA. 79+00.00

0 10 20
SCALE

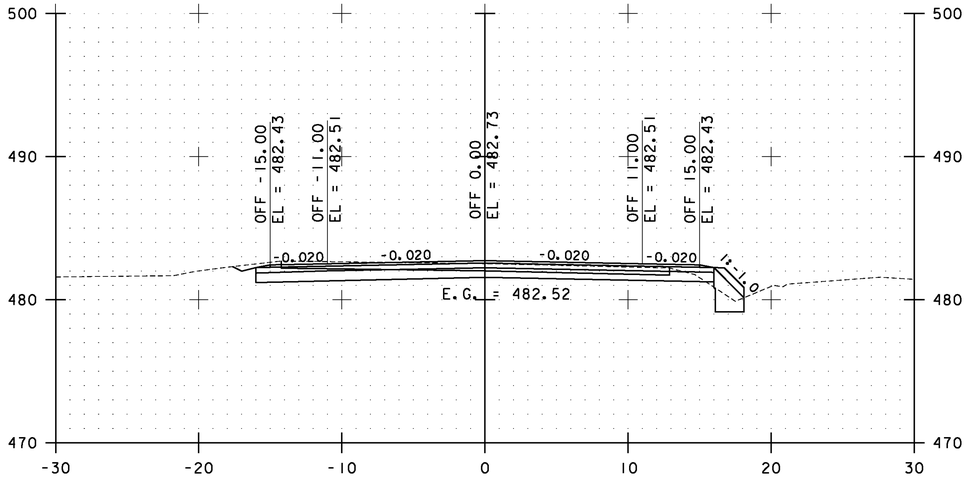
Stantec

ESSEX CROSS SECTIONS SHEET #34

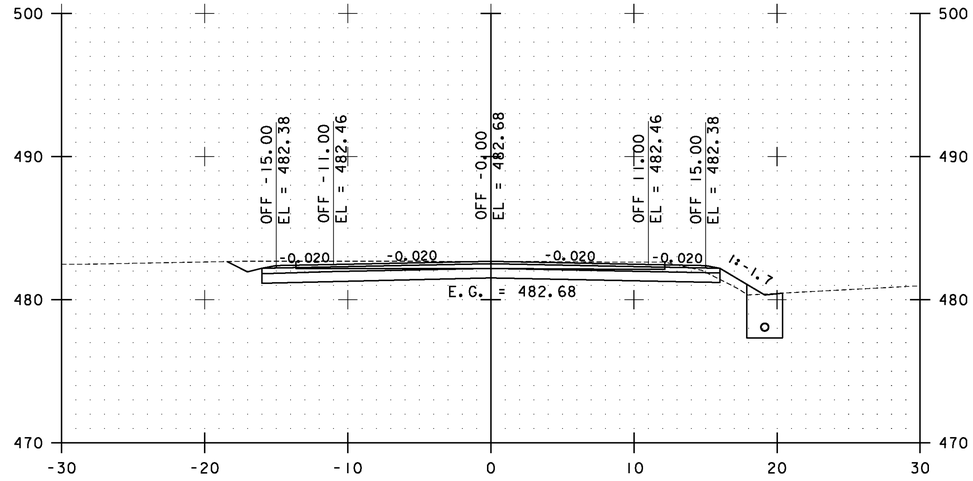
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs034.i

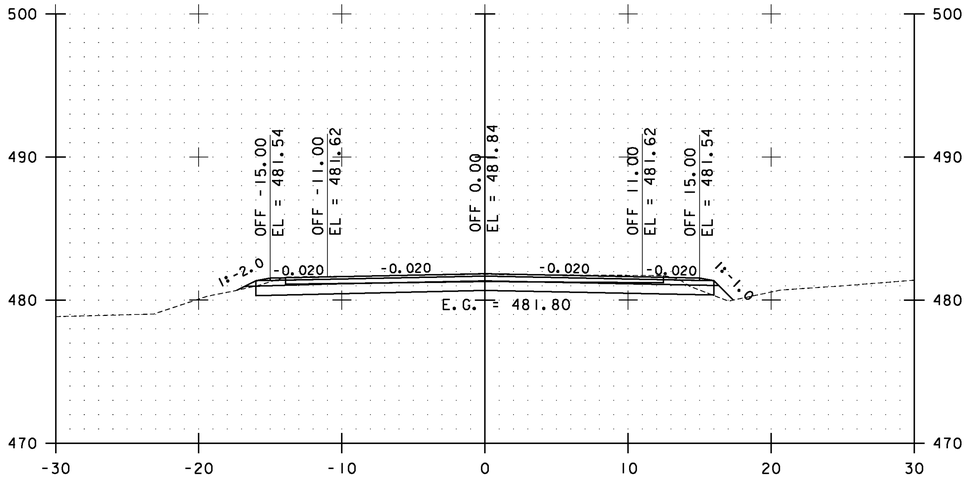
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 125 OF 239



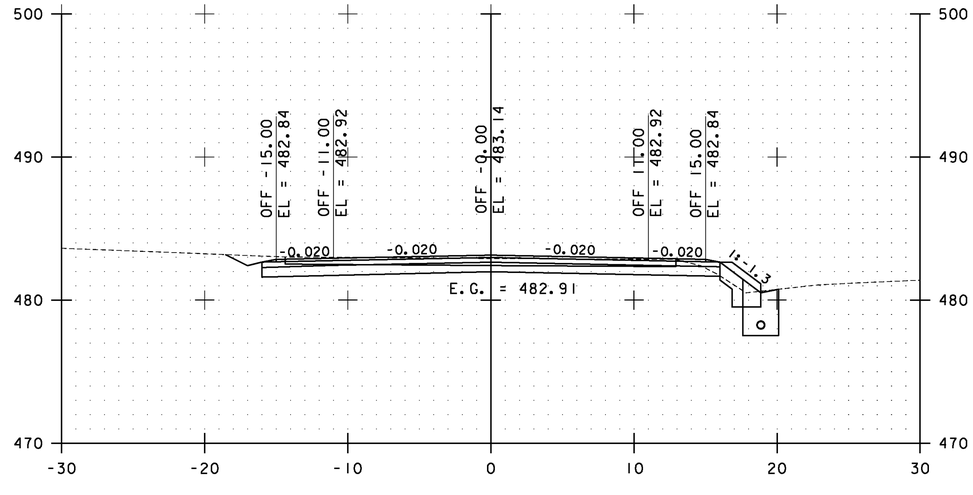
80+00.00



81+00.00



79+50.00



80+50.00

STA. 79+50.00 TO STA. 81+00.00

0 10 20
SCALE

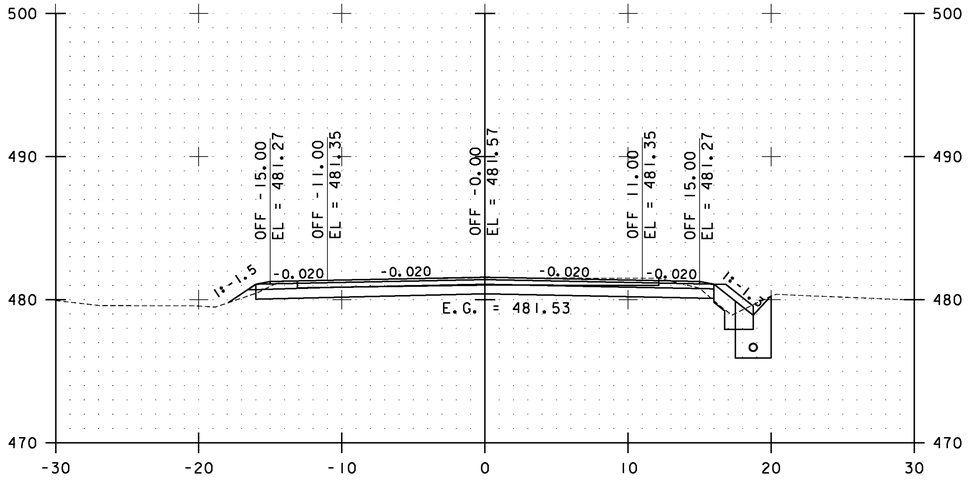
Stantec

ESSEX CROSS SECTIONS SHEET #35

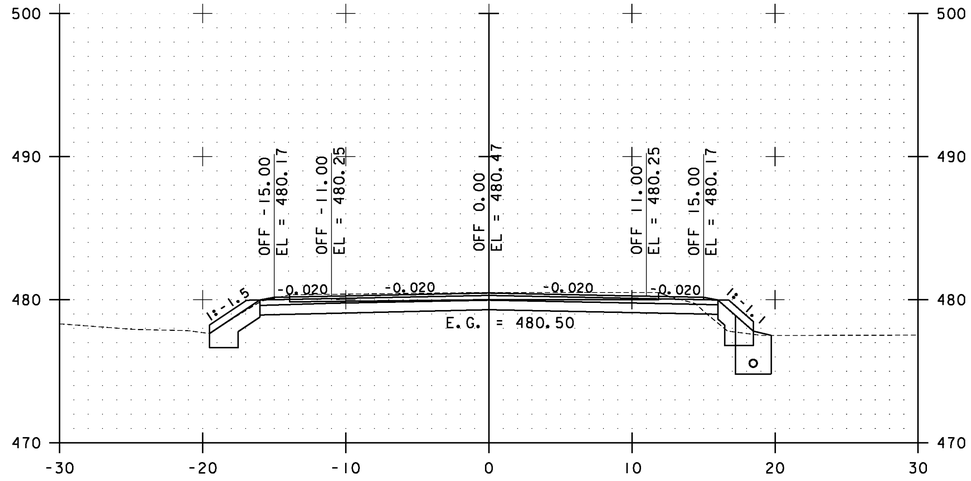
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs035.i

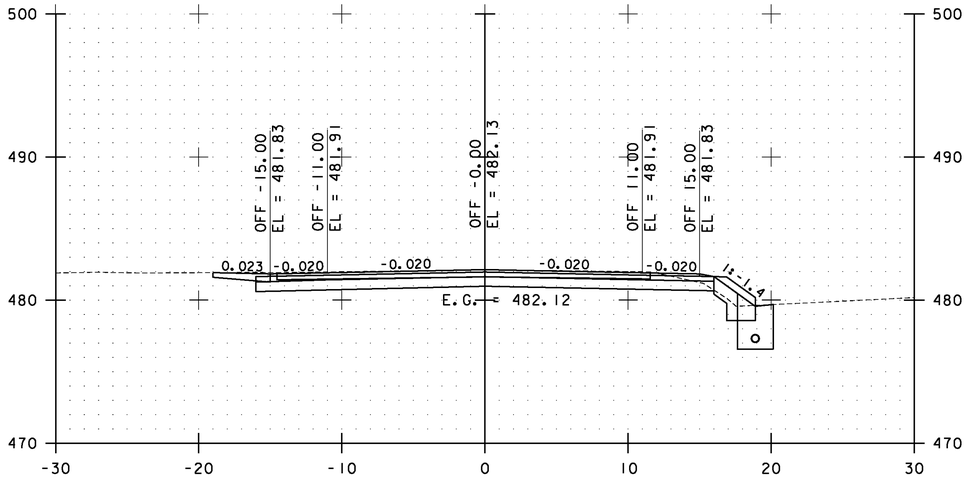
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 126 OF 239



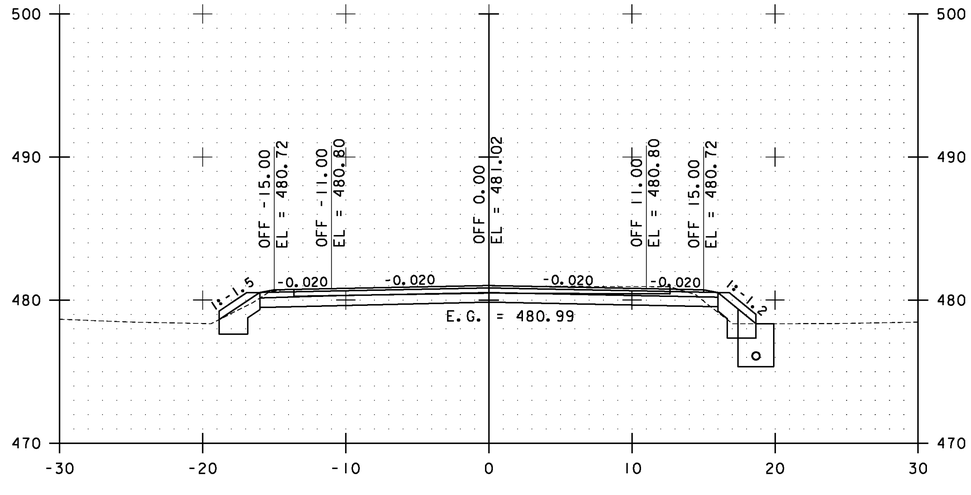
82+00.00



83+00.00



81+50.00



82+50.00

STA. 81+50.00 TO STA. 83+00.00

0 10 20
SCALE

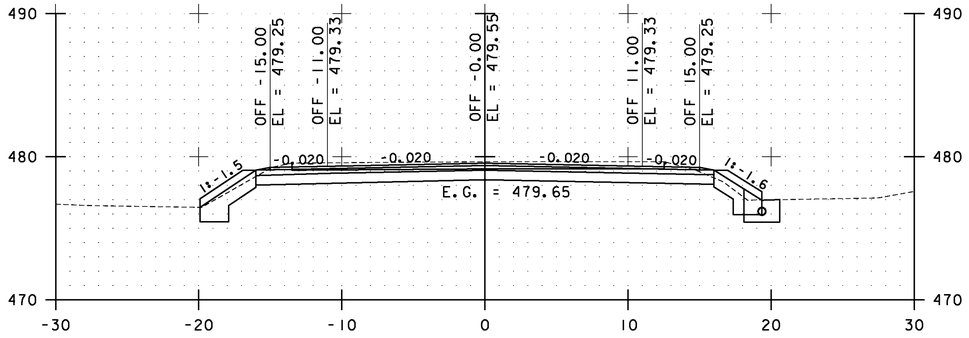
Stantec

ESSEX CROSS SECTIONS SHEET #36

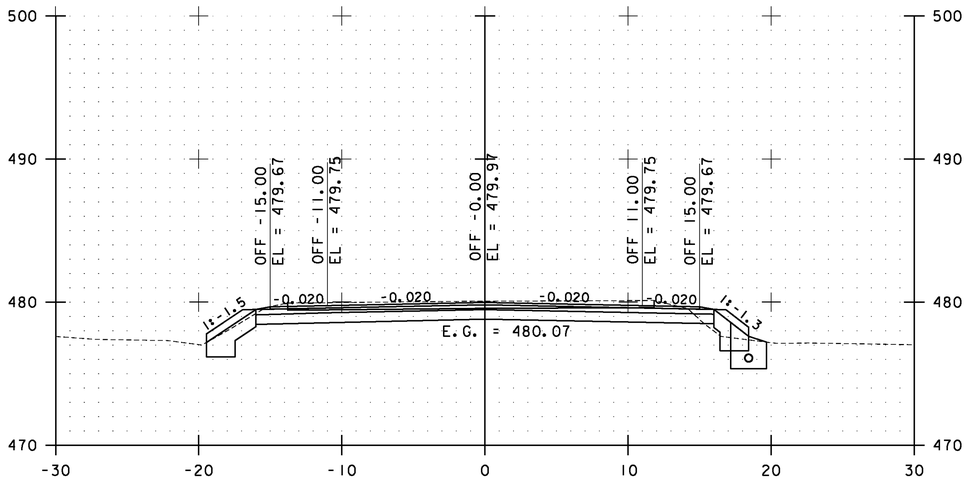
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs036.i

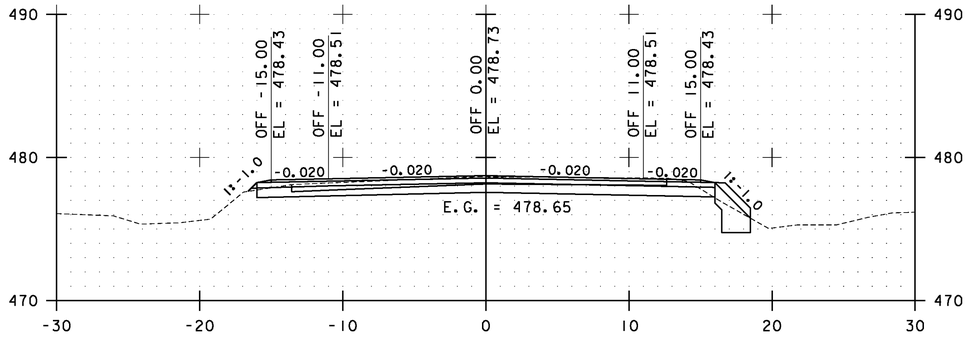
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 127 OF 239



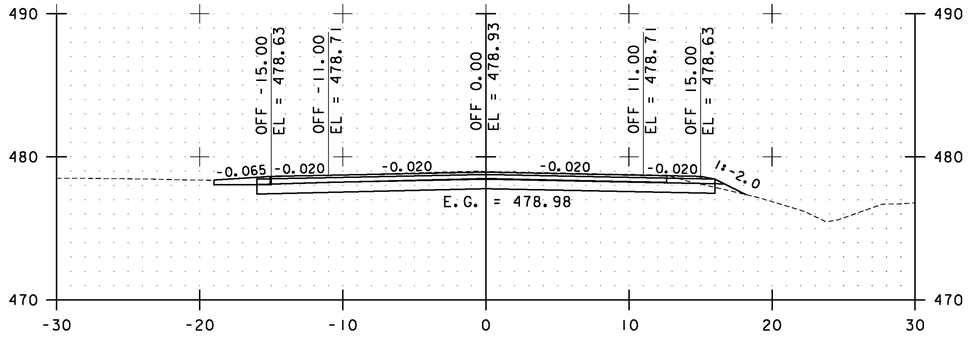
84+00.00



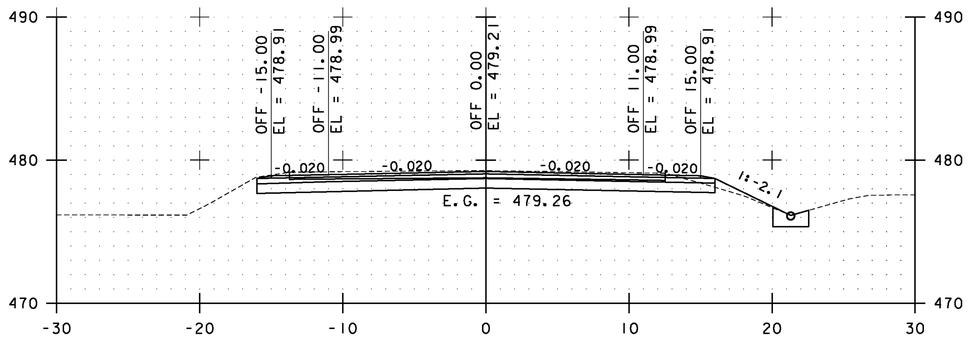
83+50.00



85+50.00



85+00.00



84+50.00

STA. 83+50.00 TO STA. 85+50.00

0 10 20
SCALE

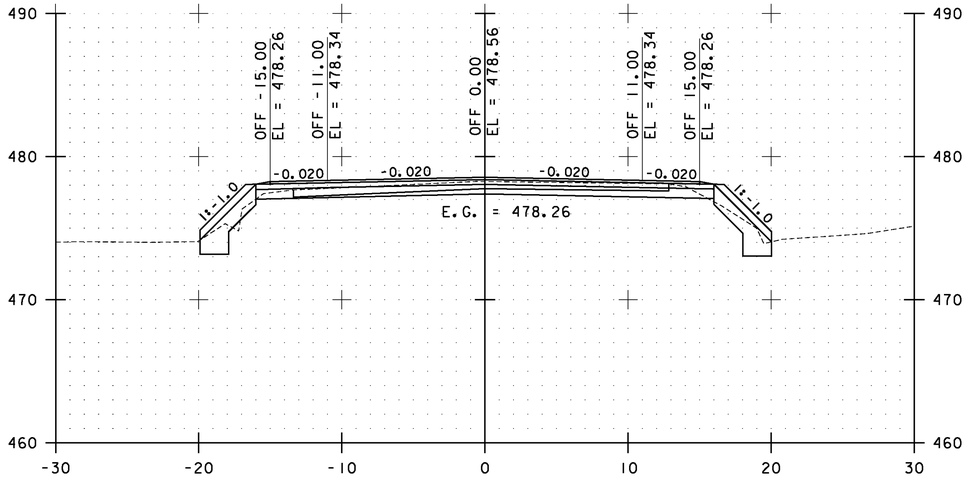
Stantec

ESSEX CROSS SECTIONS SHEET #37

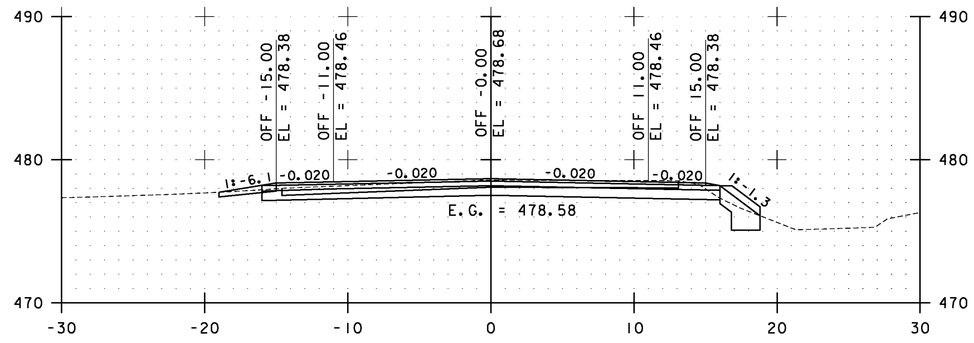
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs037.i

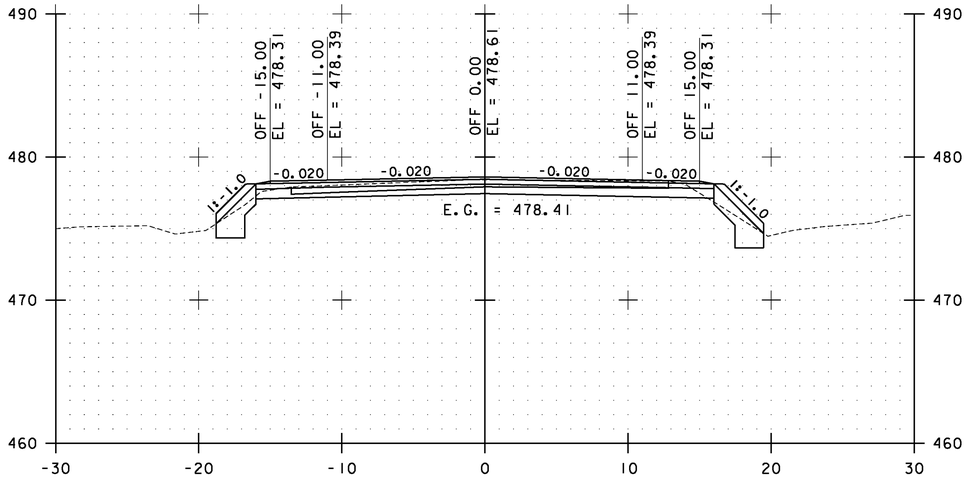
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 128 OF 239



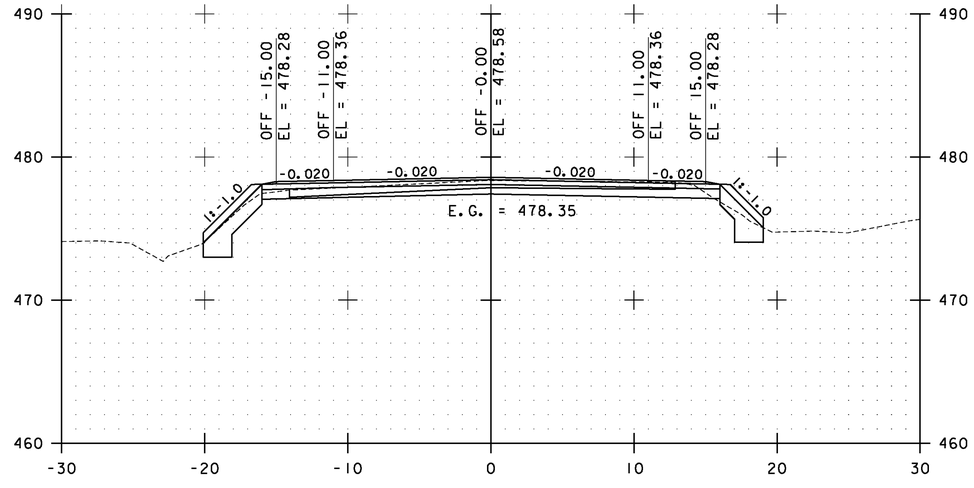
86+50.00



87+50.00



86+00.00



87+00.00

STA. 86+00.00 TO STA. 87+50.00

0 10 20
SCALE

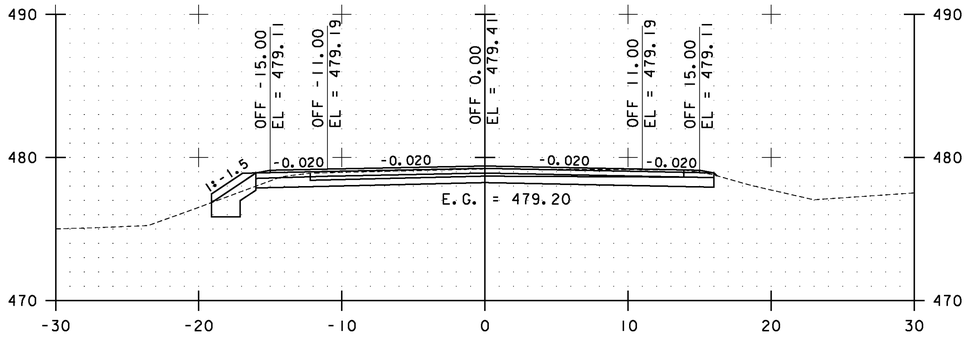
Stantec

ESSEX CROSS SECTIONS SHEET #38

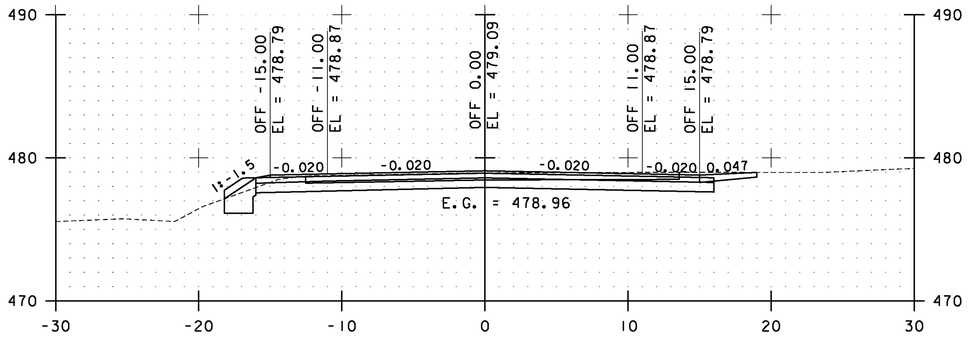
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs038.i

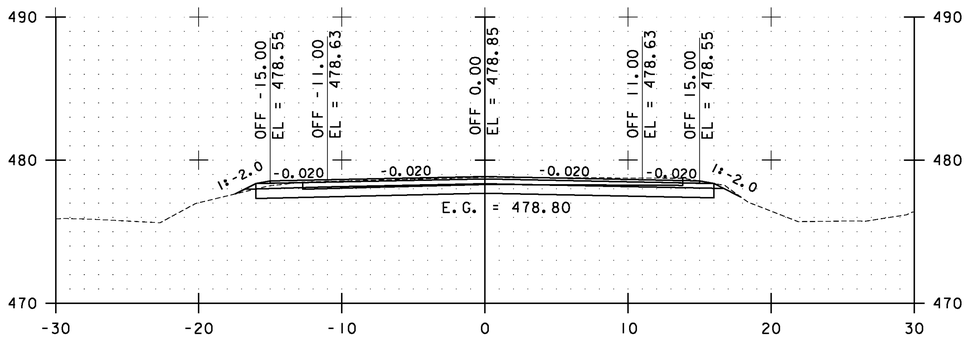
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 129 OF 239



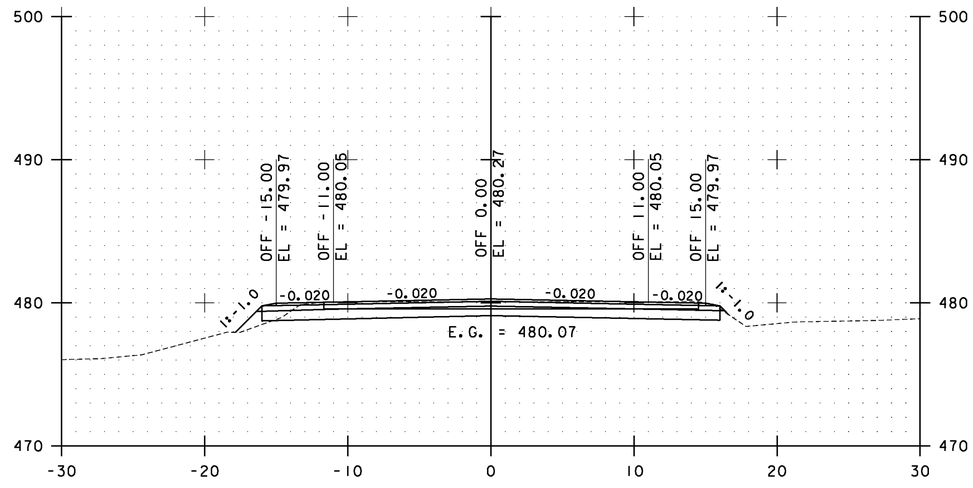
89+00.00



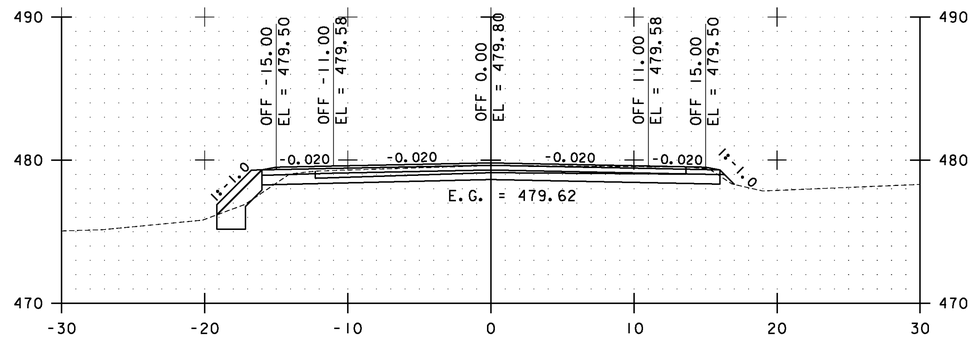
88+50.00



88+00.00



90+00.00



89+50.00

STA. 88+00.00 TO STA. 90+00.00

0 10 20
SCALE

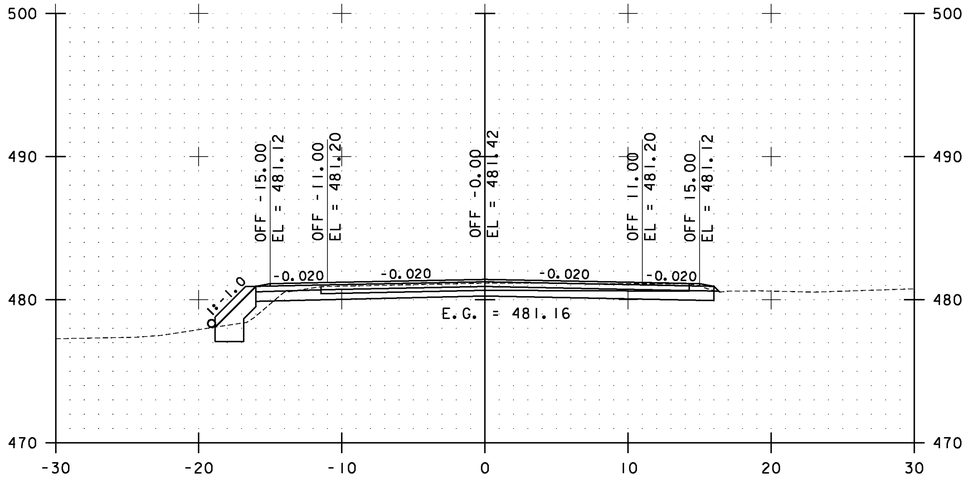
Stantec

ESSEX CROSS SECTIONS SHEET #39

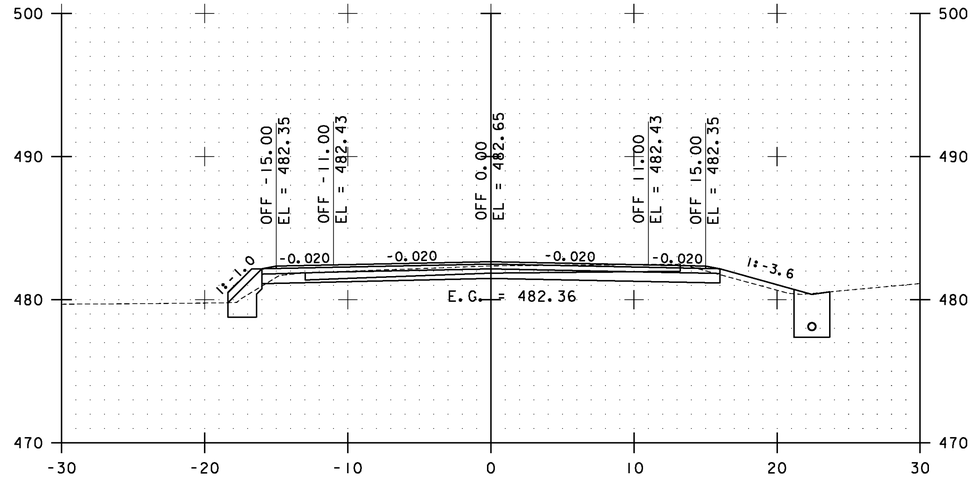
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs039.i

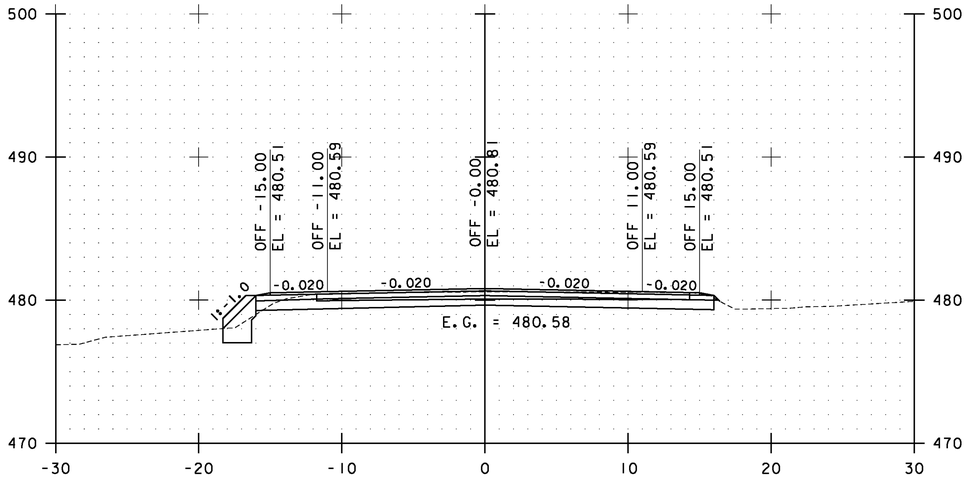
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 130 OF 239



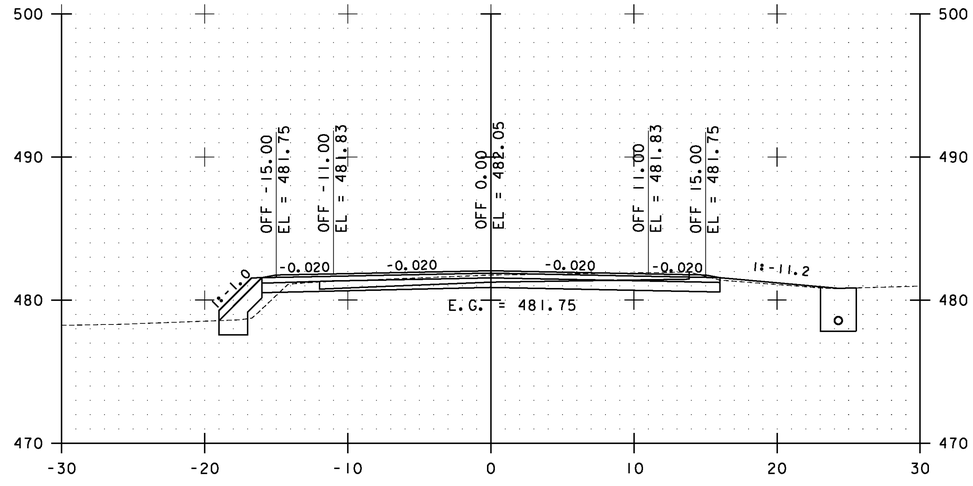
91+00.00



92+00.00



90+50.00



91+50.00

STA. 90+50.00 TO STA. 92+00.00

0 10 20
SCALE

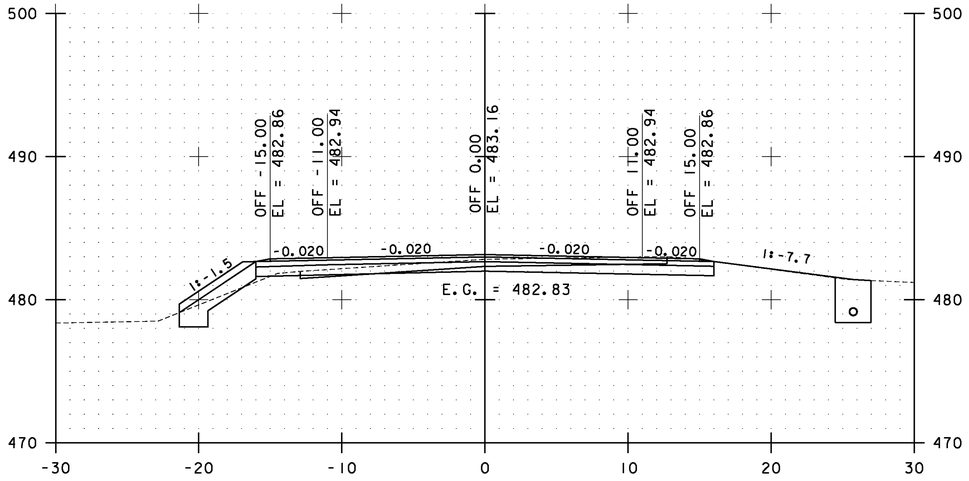
Stantec

ESSEX CROSS SECTIONS SHEET #40

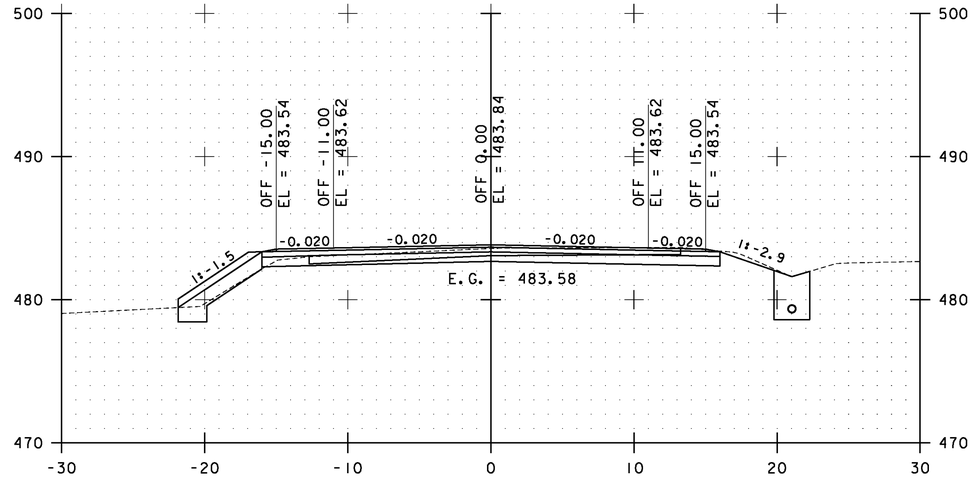
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs040.i

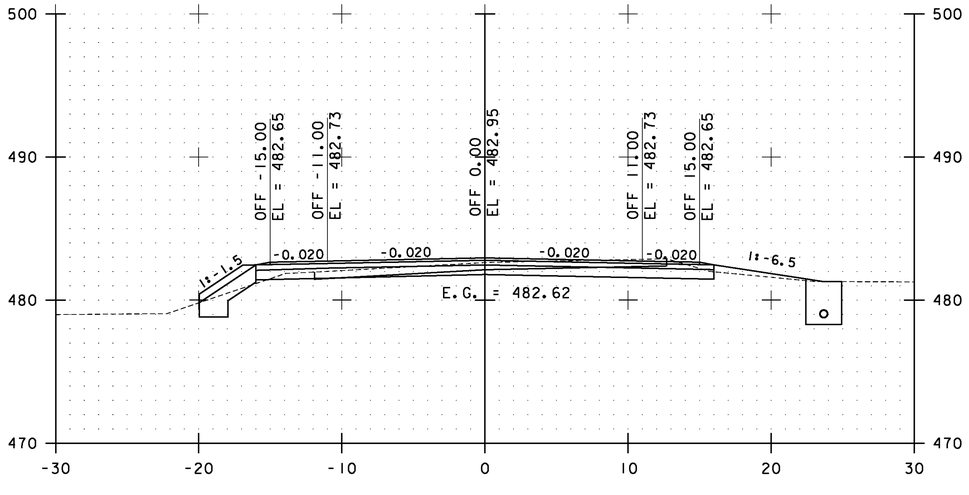
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 131 OF 239



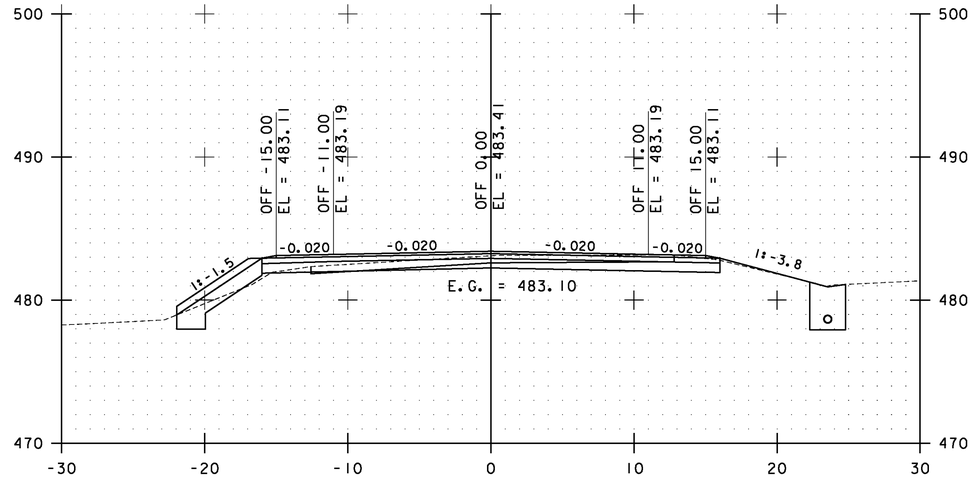
93+00.00



94+00.00



92+50.00



93+50.00

STA. 92+50.00 TO STA. 94+00.00

0 10 20
SCALE

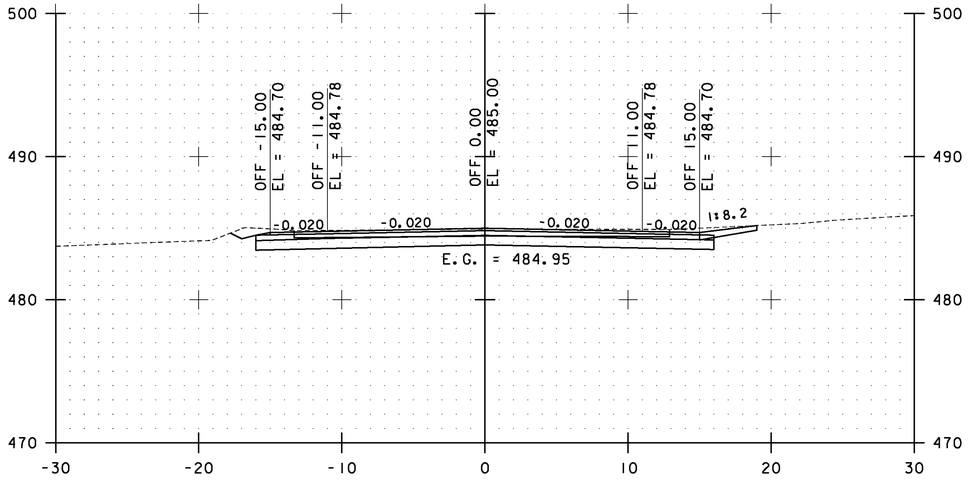
Stantec

ESSEX CROSS SECTIONS SHEET #41

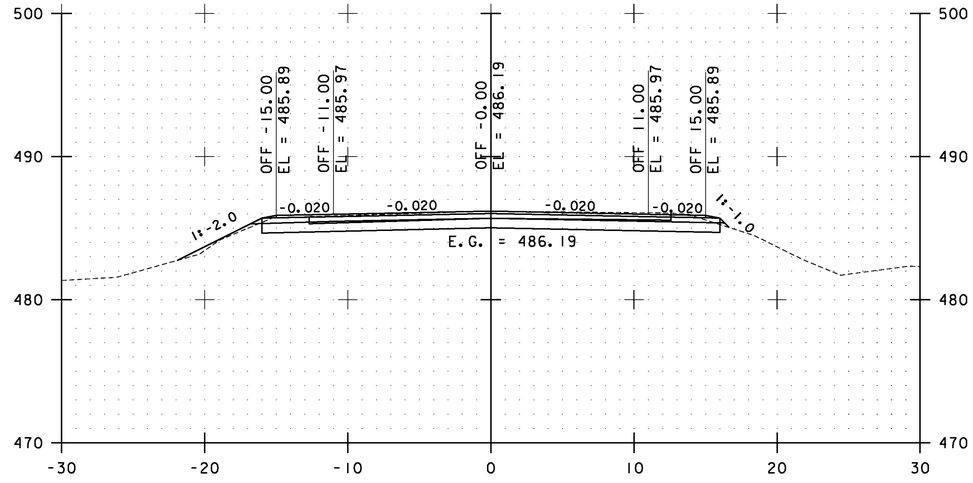
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs041.i

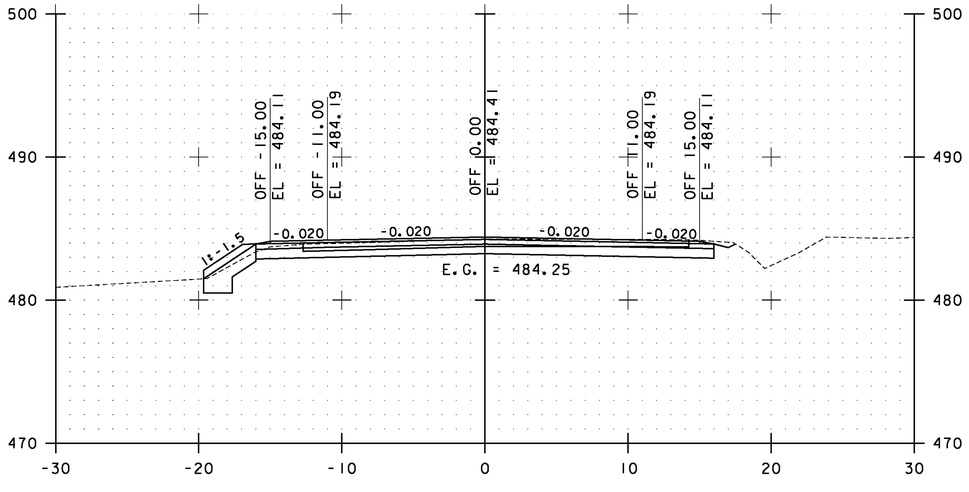
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 132 OF 239



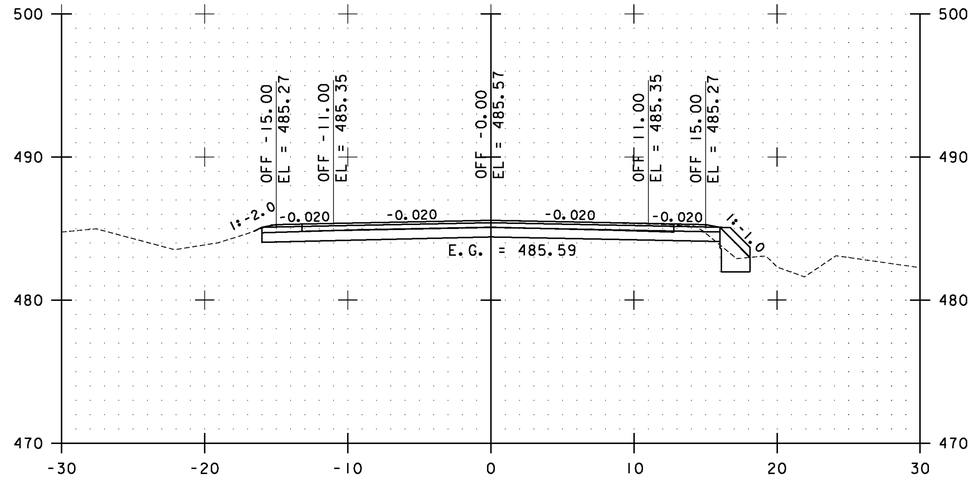
95+00.00



96+00.00



94+50.00



95+50.00

STA. 94+50.00 TO STA. 96+00.00

0 10 20
SCALE

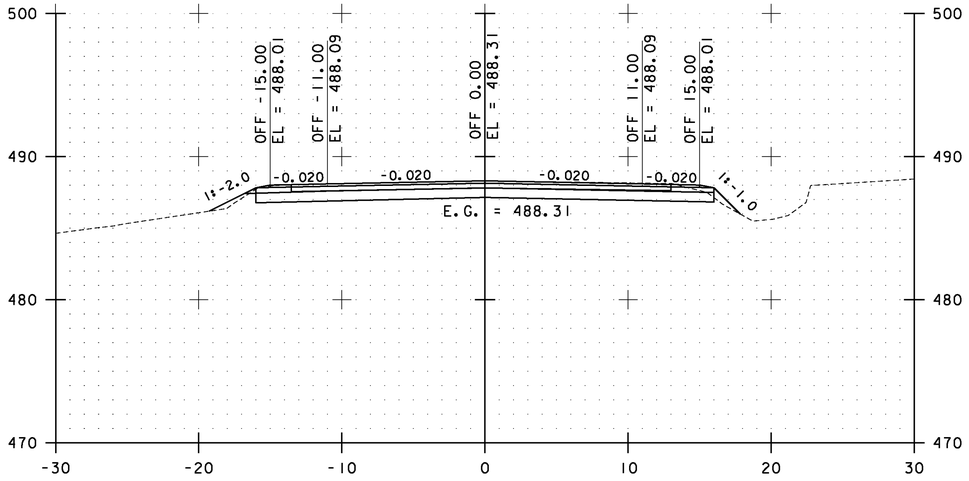
Stantec

ESSEX CROSS SECTIONS SHEET #42

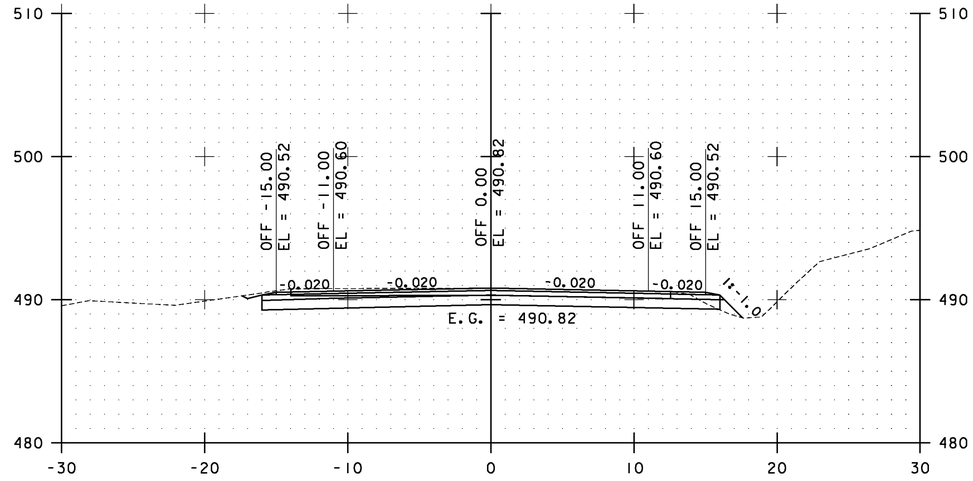
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs042.i

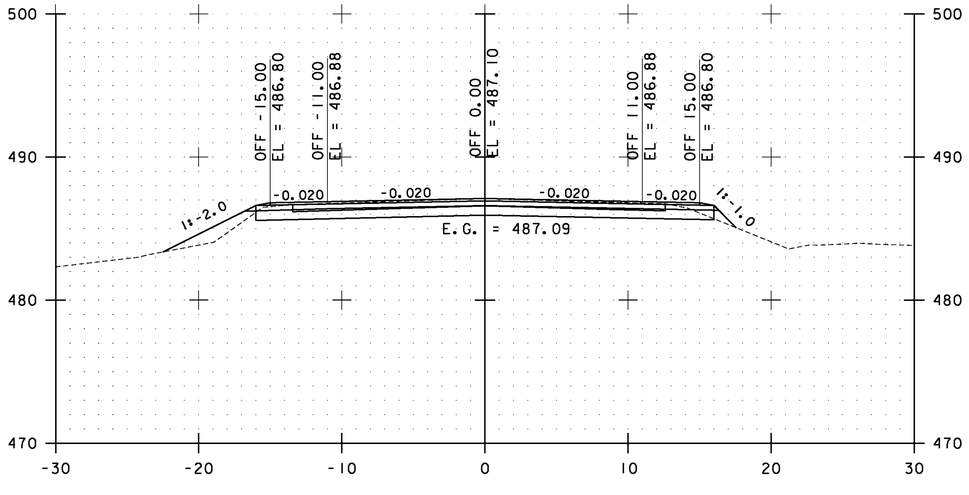
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 133 OF 239



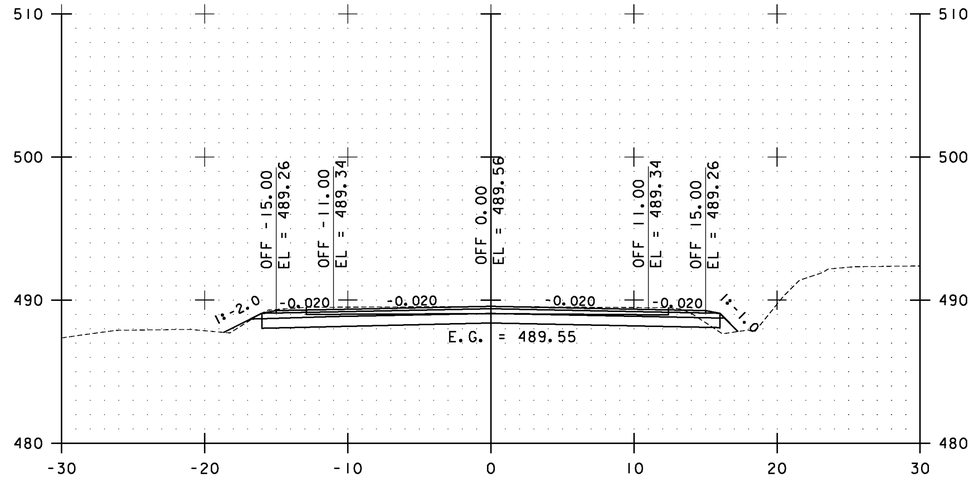
97+00.00



98+00.00



96+50.00



97+50.00

STA. 96+50.00 TO STA. 98+00.00

0 10 20
SCALE

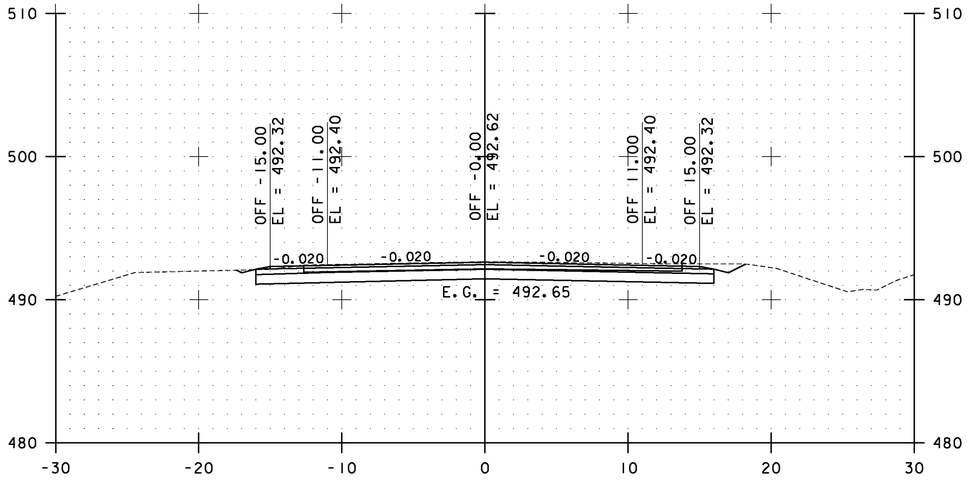
Stantec

ESSEX CROSS SECTIONS SHEET #43

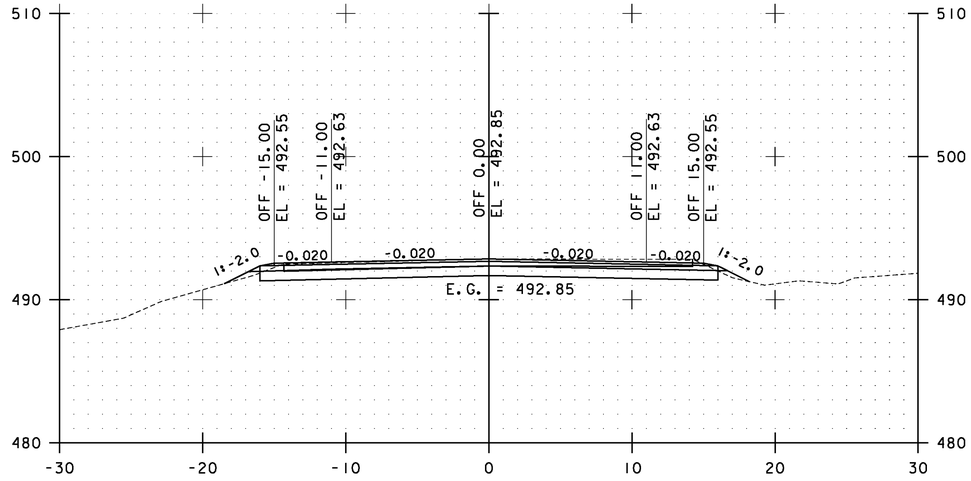
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs043.i

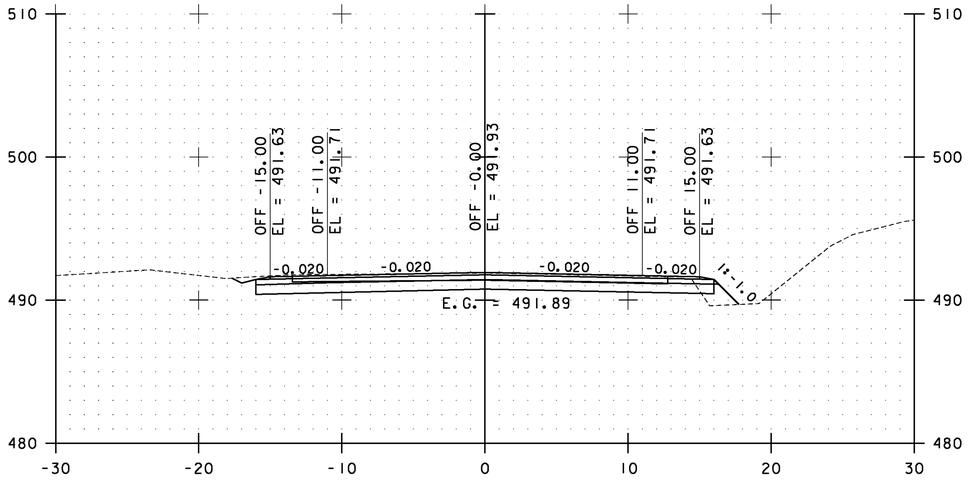
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 134 OF 239



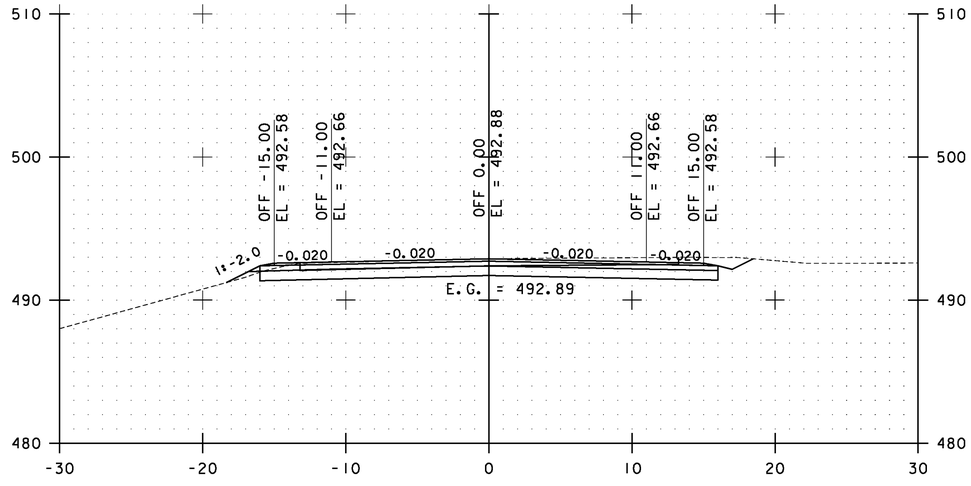
99+00.00



100+00.00



98+50.00



99+50.00

STA. 98+50.00 TO STA. 100+00.00

0 10 20
SCALE

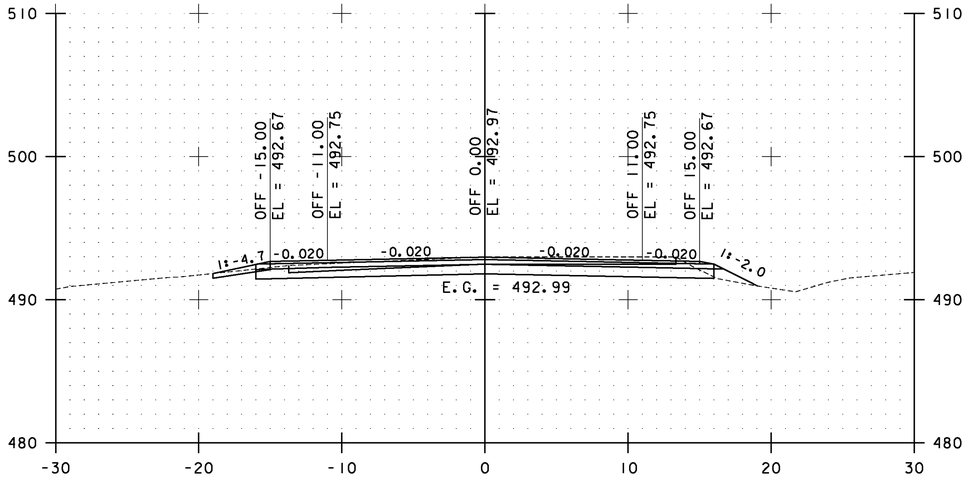
Stantec

ESSEX CROSS SECTIONS SHEET #44

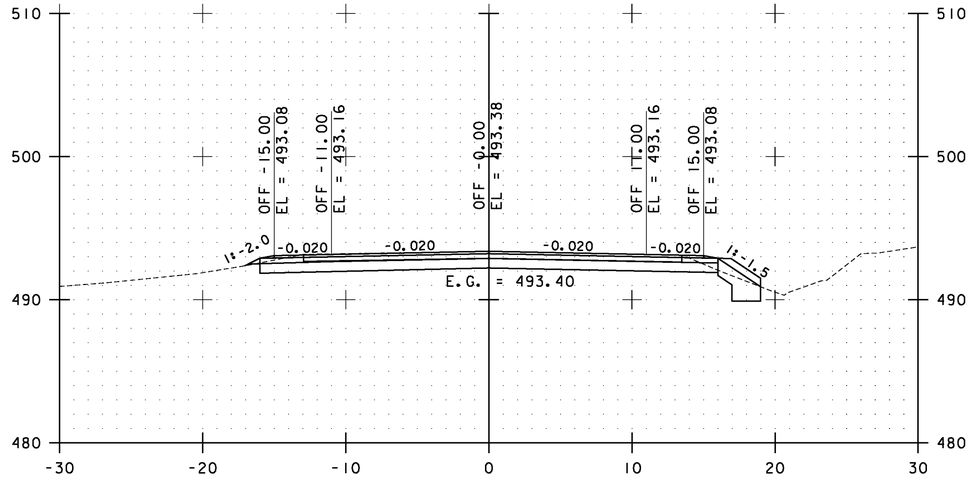
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs044.i

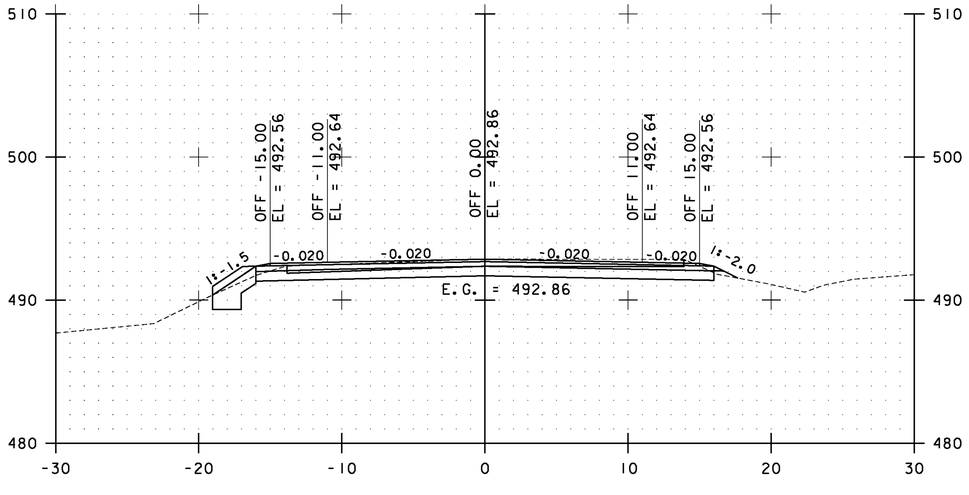
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 135 OF 239



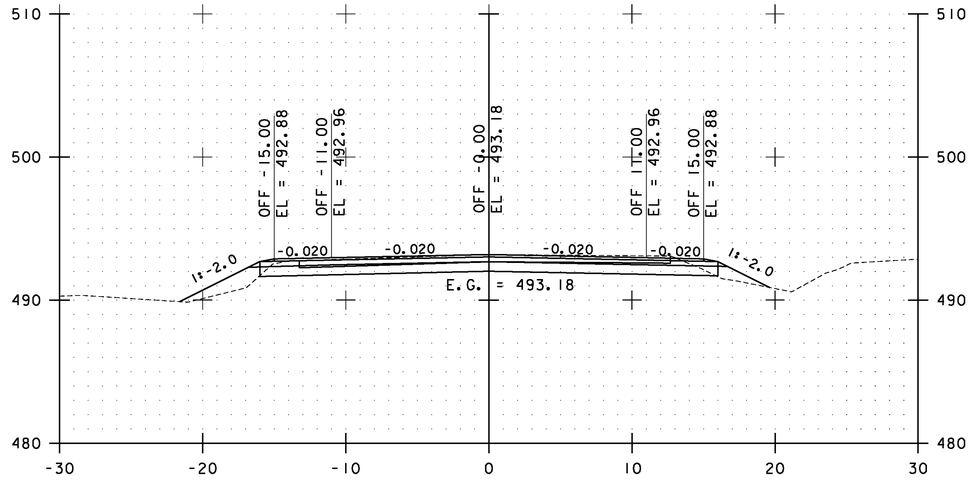
101+00.00



102+00.00



100+50.00



101+50.00

STA. 100+50.00 TO STA. 102+00.00

0 10 20
SCALE

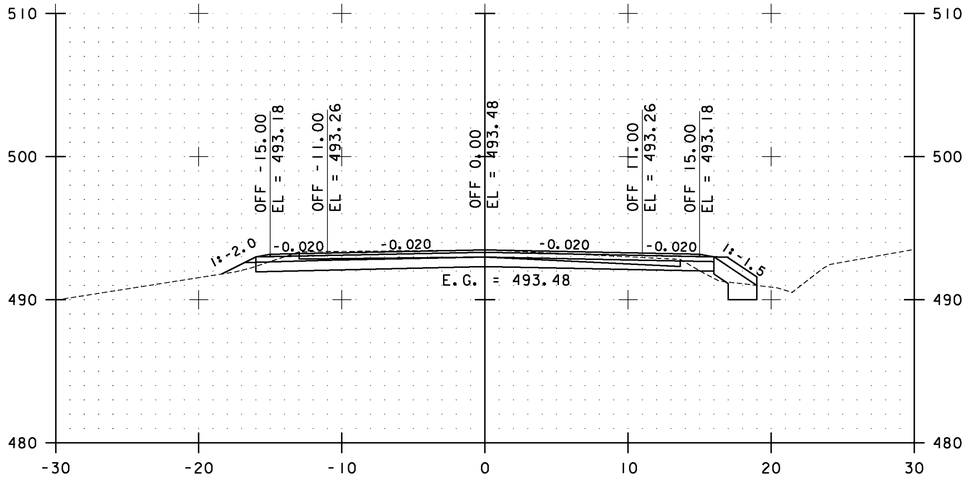
Stantec

ESSEX CROSS SECTIONS SHEET #45

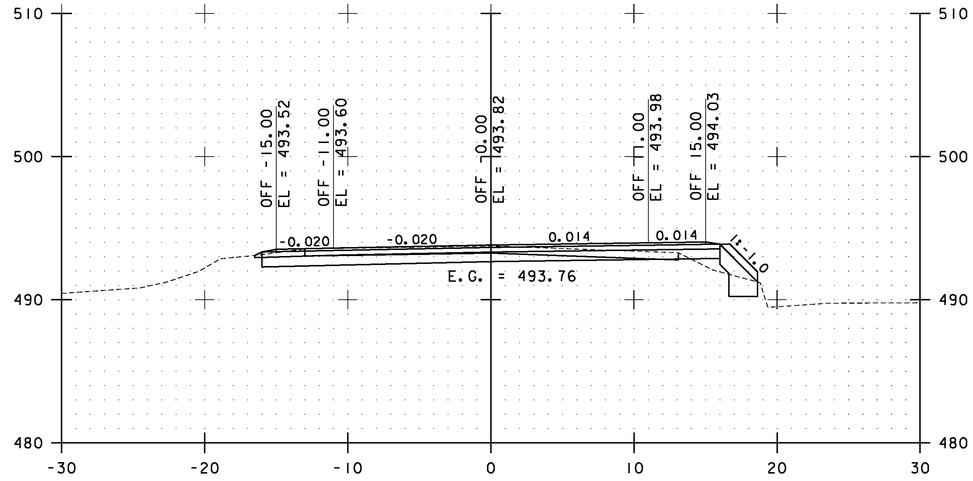
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs045.i

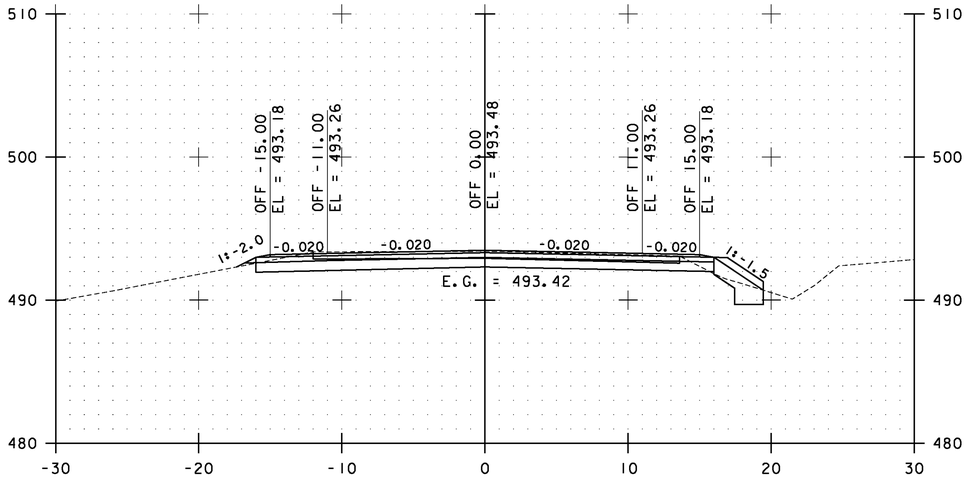
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 136 OF 239



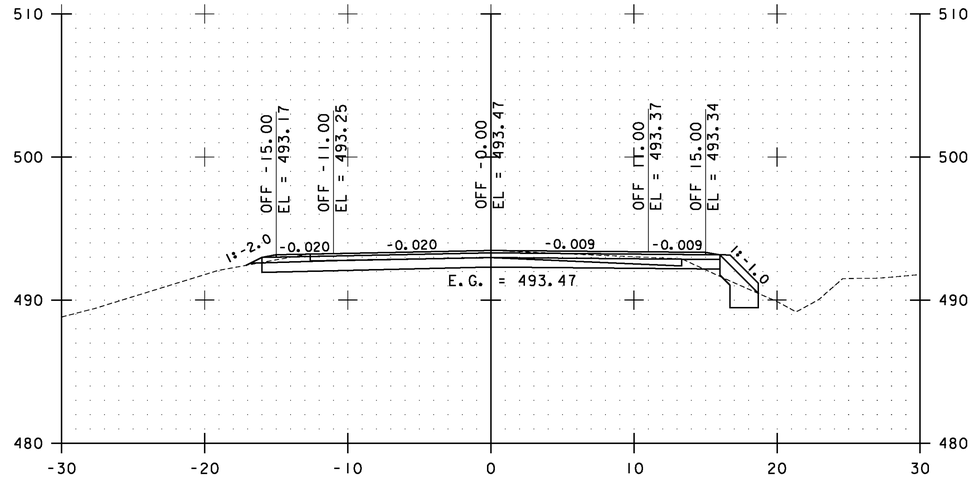
103+00.00



104+00.00



102+50.00



103+50.00

STA. 102+50.00 TO STA. 104+00.00

0 10 20
SCALE

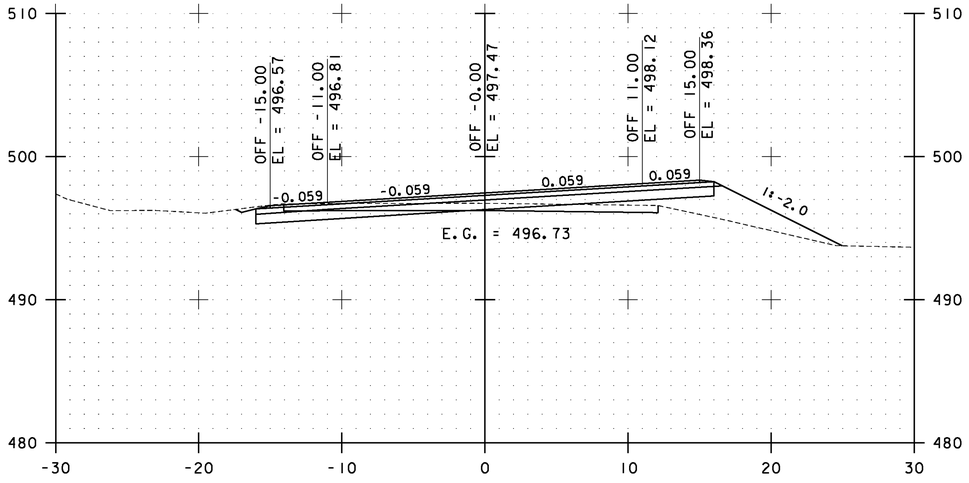
Stantec

ESSEX CROSS SECTIONS SHEET #46

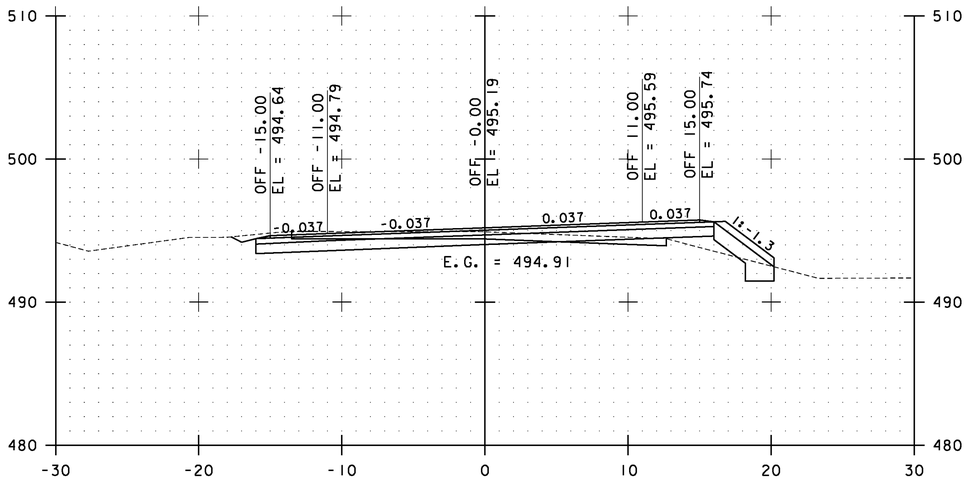
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs046.i

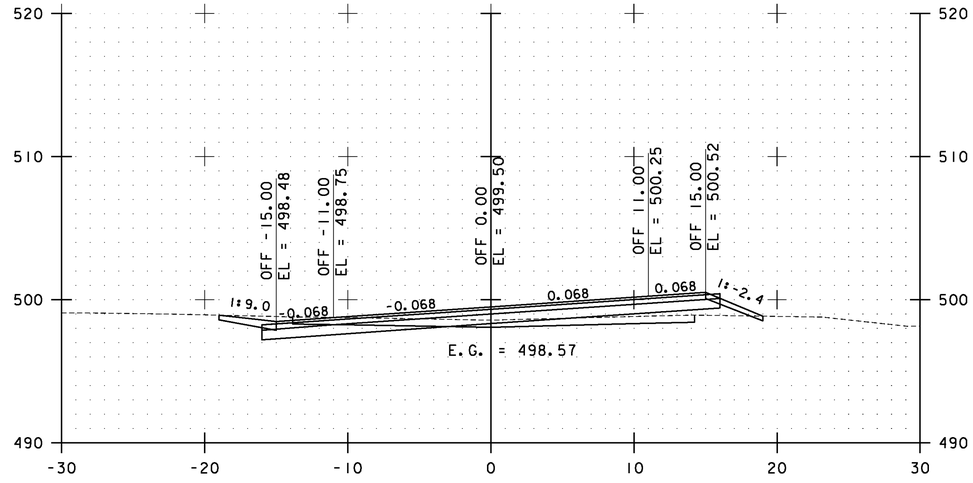
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 137 OF 239



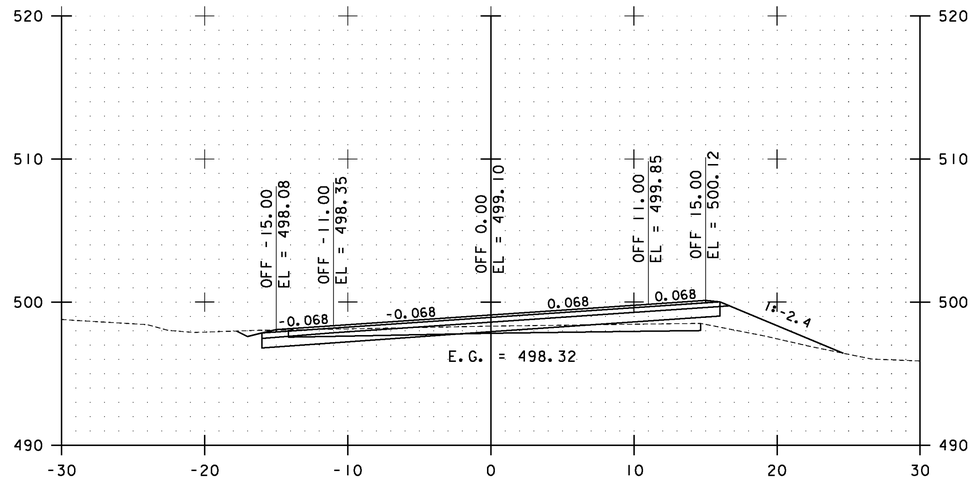
105+00.00



104+50.00



106+00.00



105+50.00

STA. 104+50.00 TO STA. 106+00.00

0 10 20
SCALE

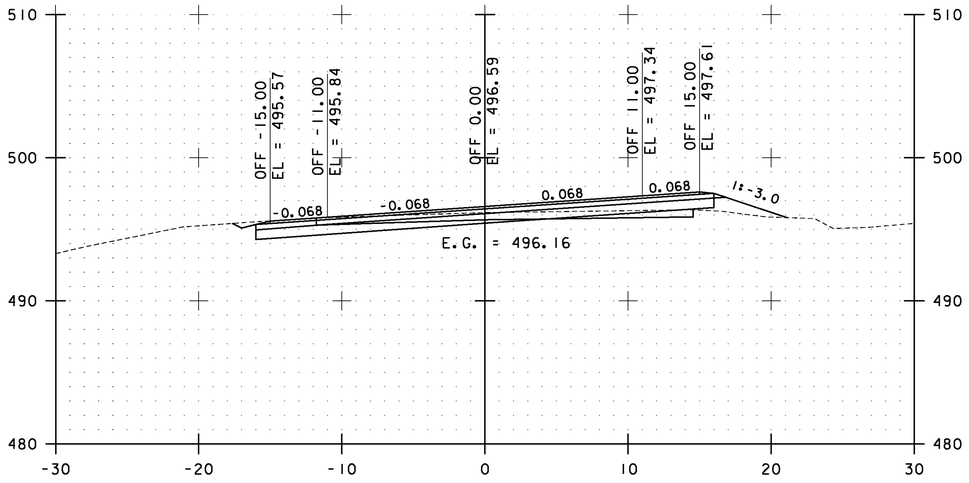
Stantec

ESSEX CROSS SECTIONS SHEET #47

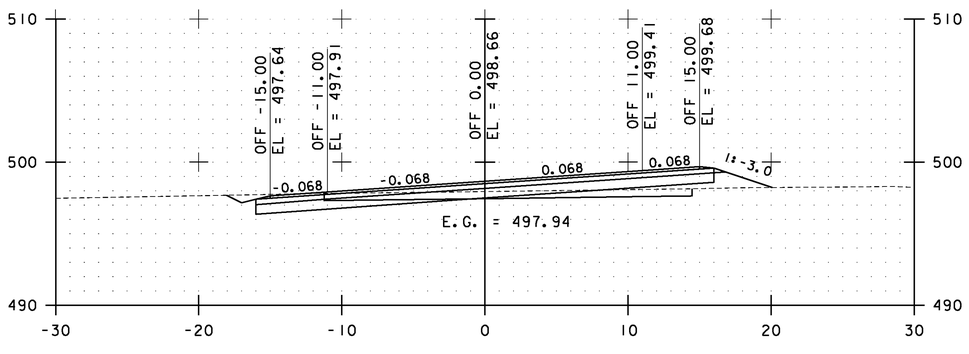
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs047.i

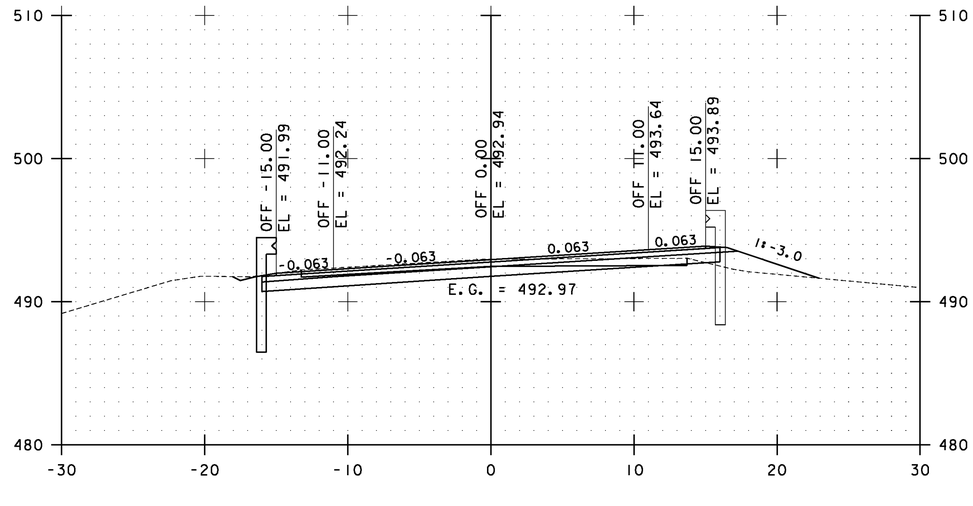
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 138 OF 239



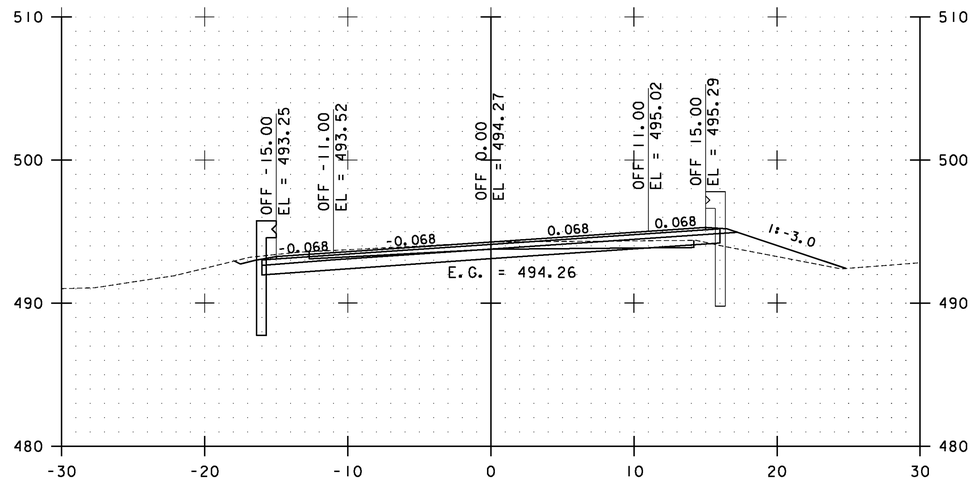
107+00.00



106+50.00



108+00.00



107+50.00

STA. 106+50.00 TO STA. 108+00.00

0 10 20
SCALE

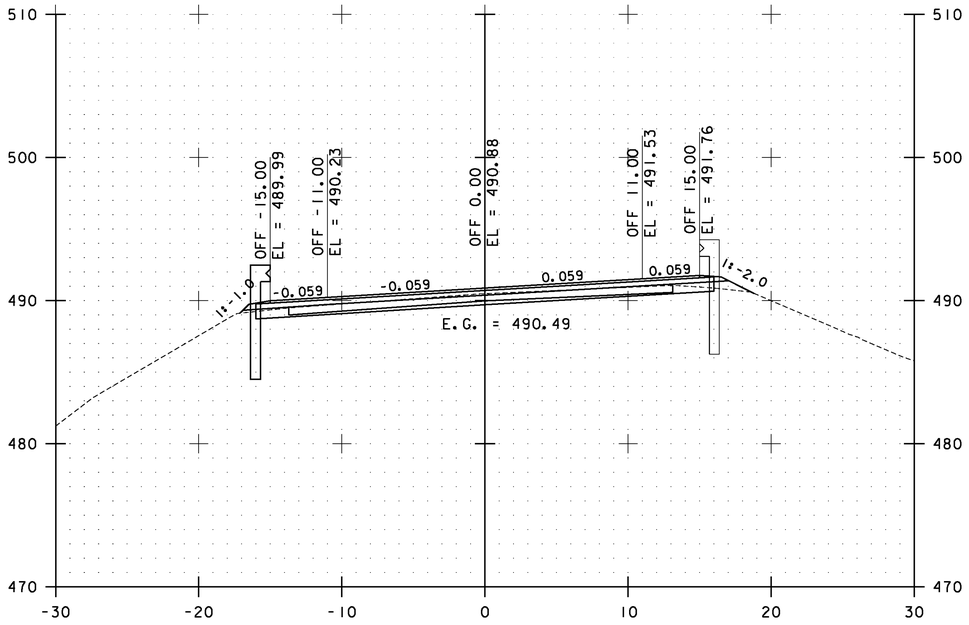
Stantec

ESSEX CROSS SECTIONS SHEET #48

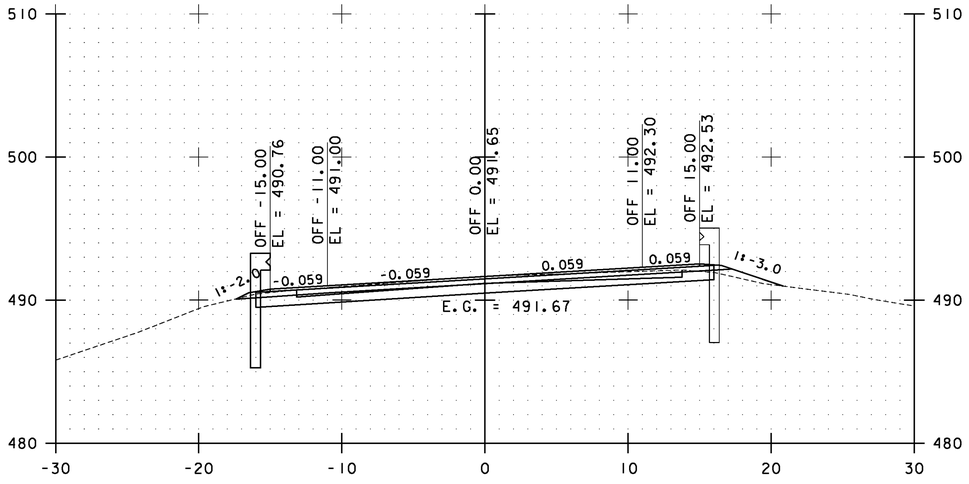
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs048.i

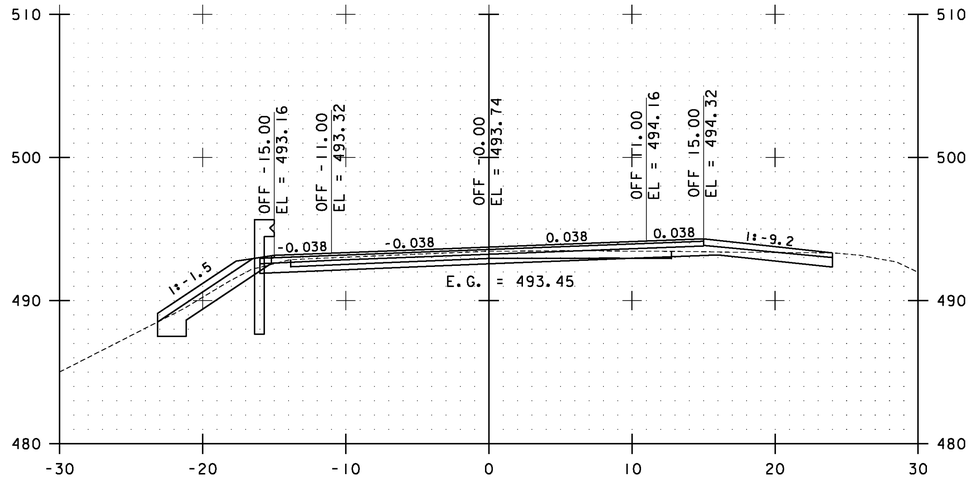
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 139 OF 239



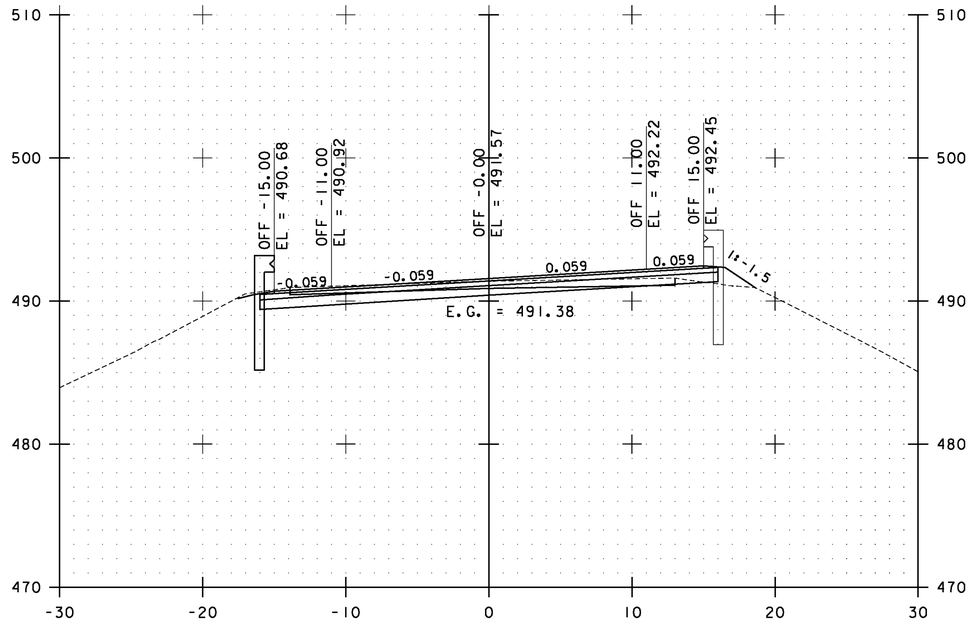
109+00.00



108+50.00



110+00.00



109+50.00

STA. 108+50.00 TO STA. 110+00.00

0 10 20
SCALE

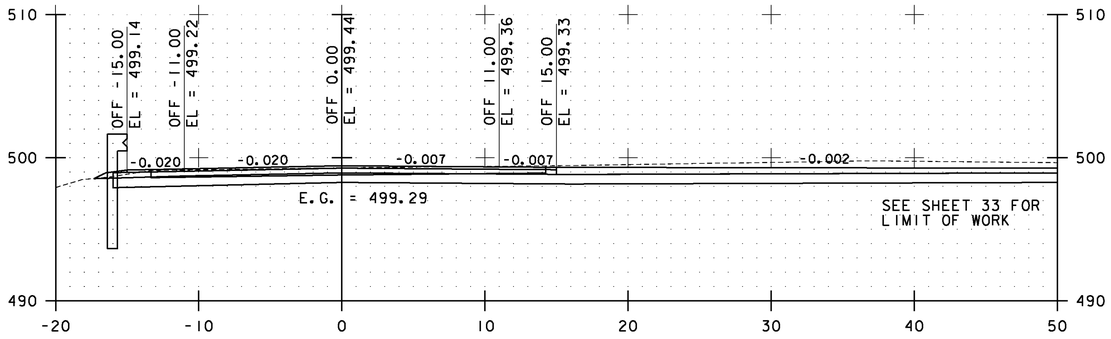
Stantec

ESSEX CROSS SECTIONS SHEET #49

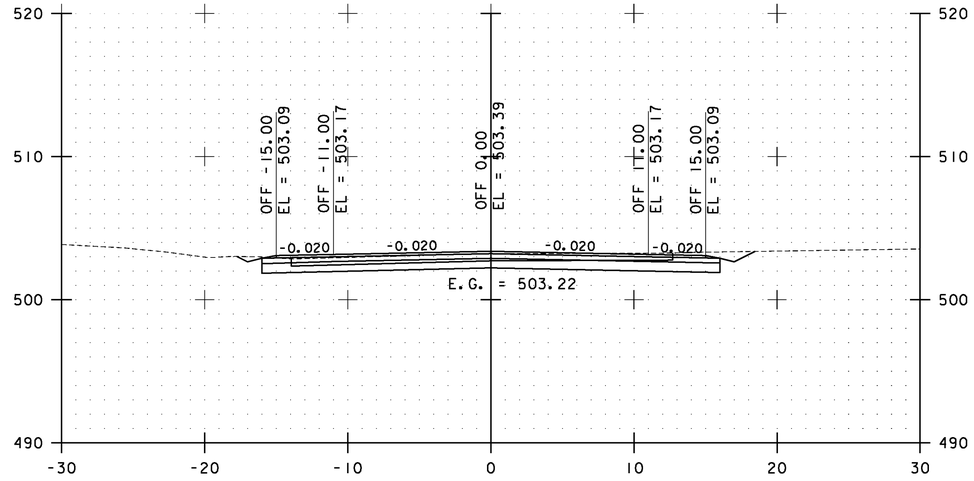
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs049.i

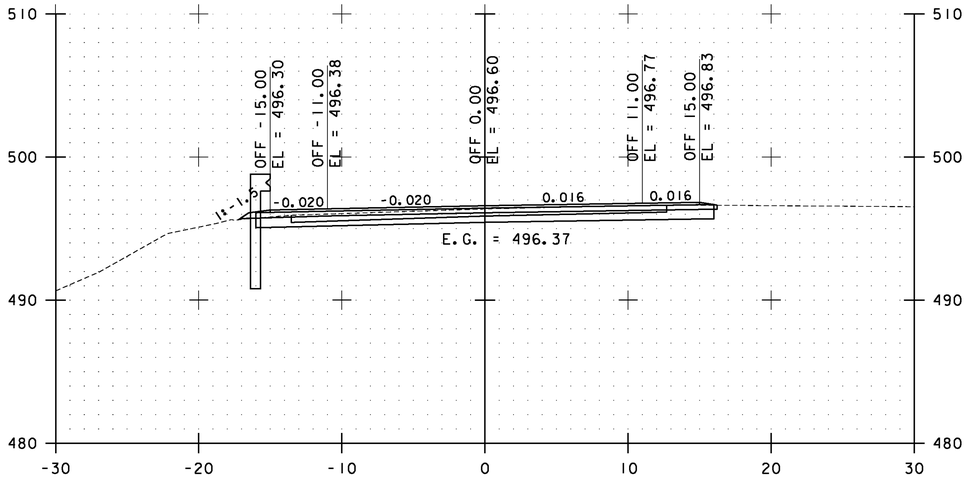
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 140 OF 239



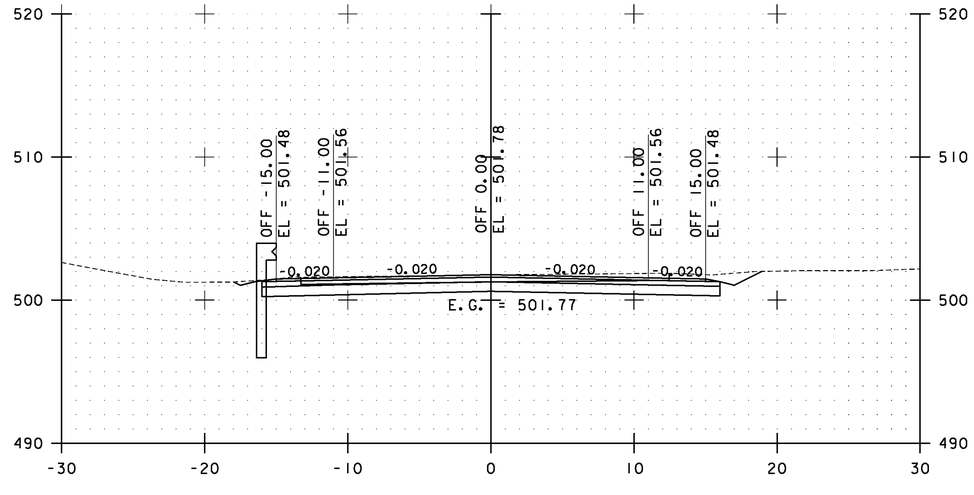
111+00.00



112+00.00



110+50.00



111+50.00

STA. 110+50.00 TO STA. 112+00.00

0 10 20
SCALE

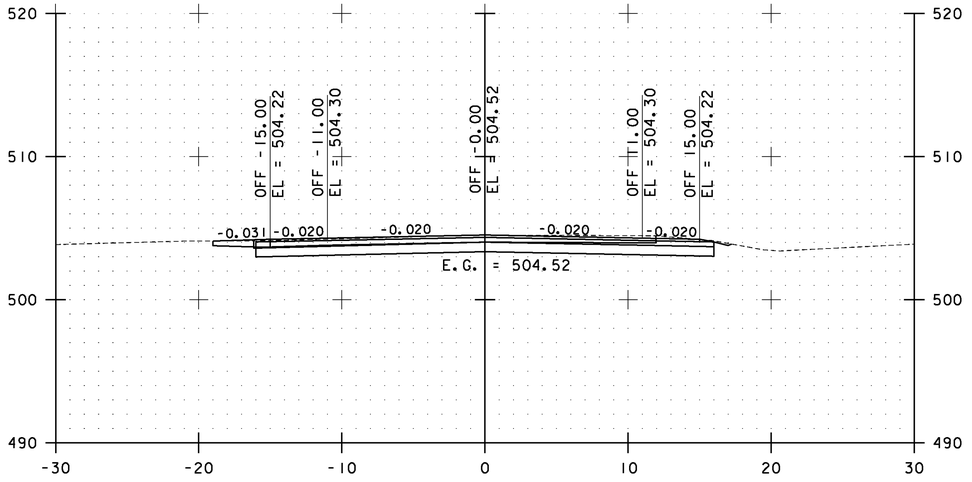
Stantec

ESSEX CROSS SECTIONS SHEET #50

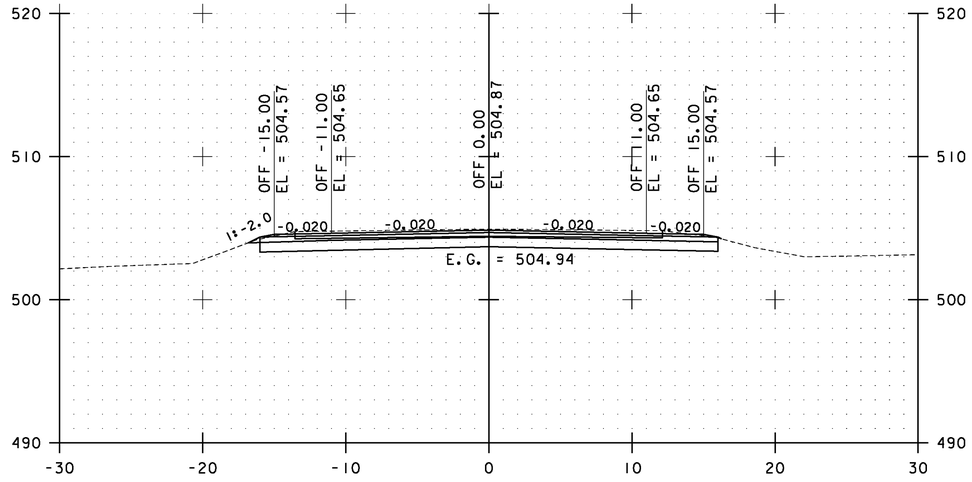
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs050.i

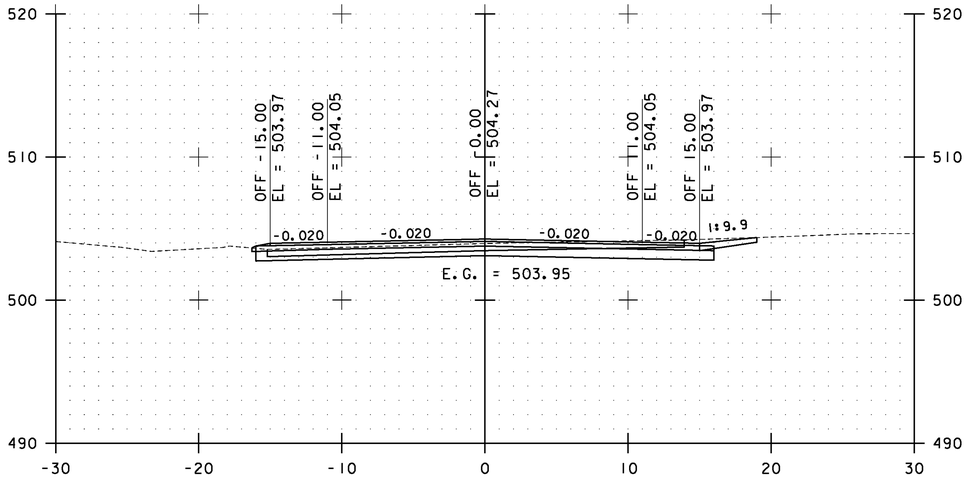
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 141 OF 239



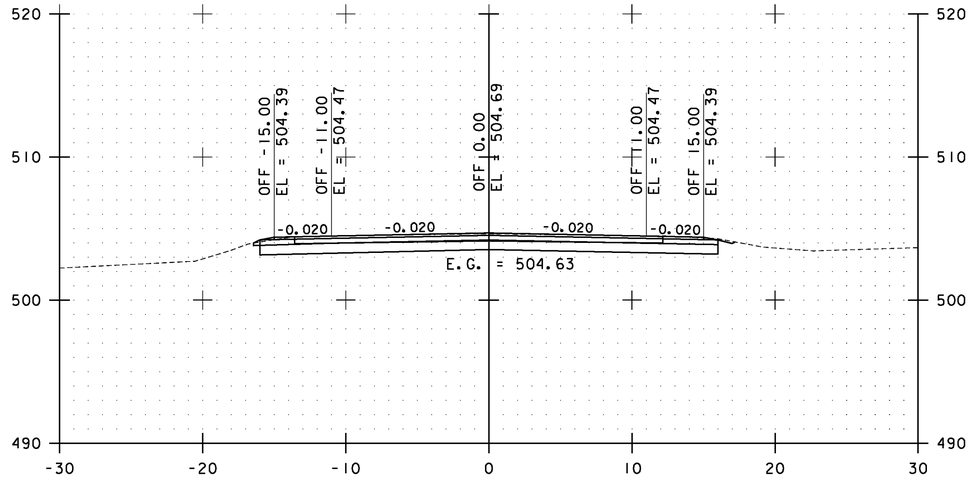
113+00.00



114+00.00



112+50.00



113+50.00

STA. 112+50.00 TO STA. 114+00.00

0 10 20
SCALE

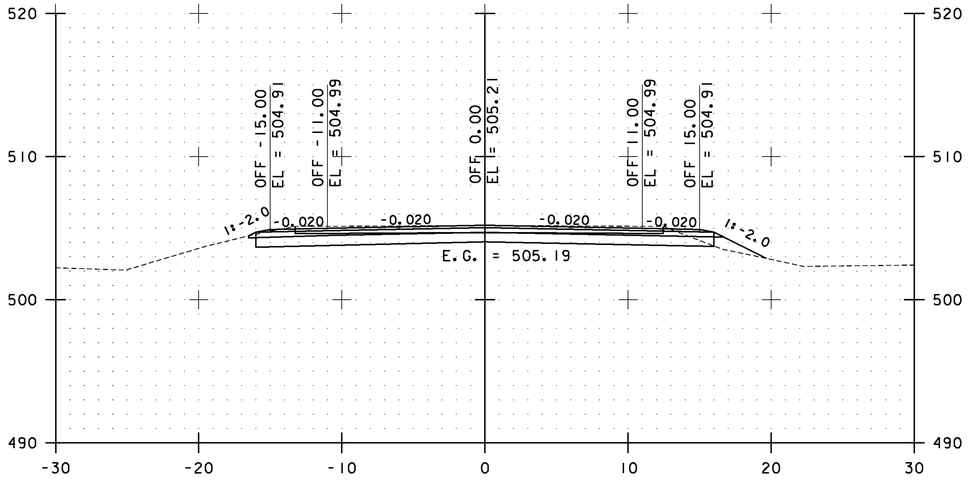
Stantec

ESSEX CROSS SECTIONS SHEET #51

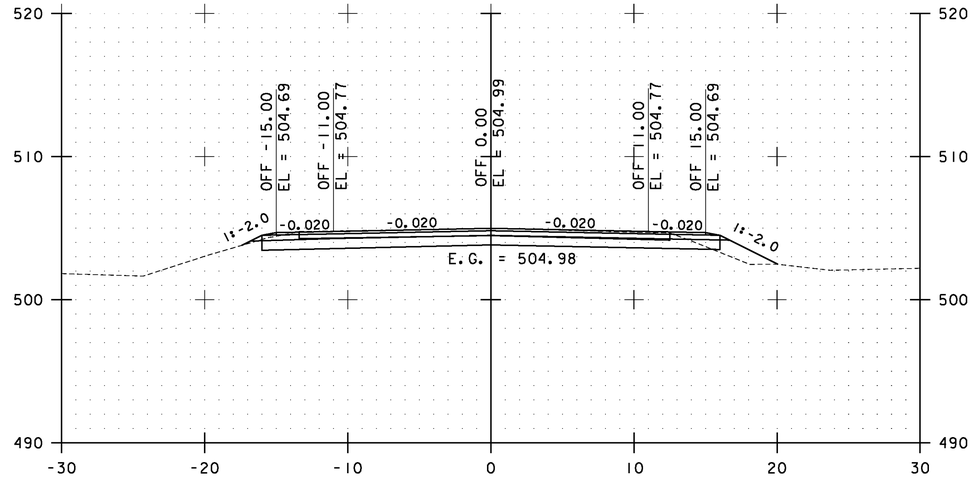
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs051.i

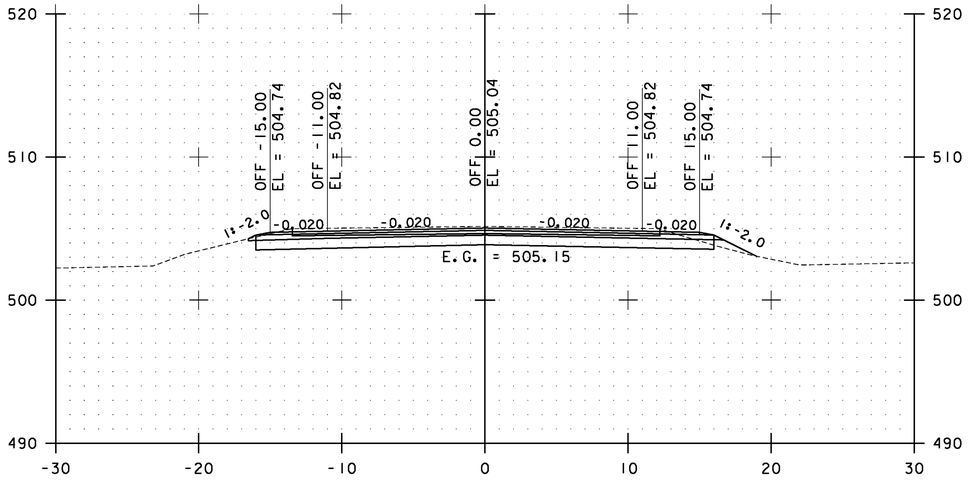
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 142 OF 239



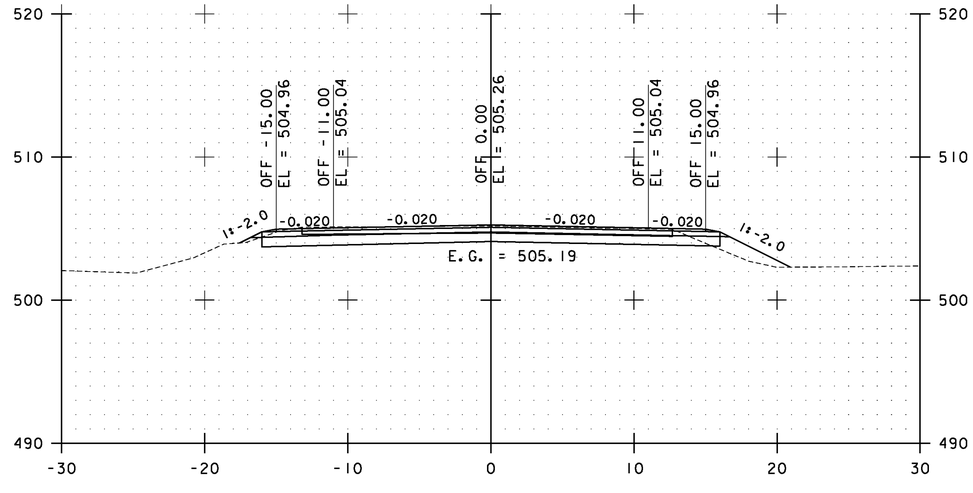
115+00.00



116+00.00



114+50.00



115+50.00

STA. 114+50.00 TO STA. 116+00.00

0 10 20
SCALE

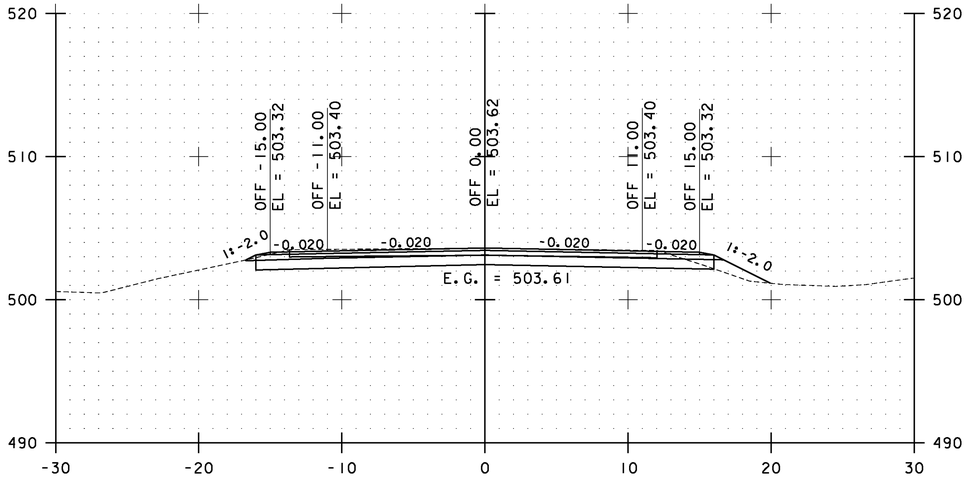
Stantec

ESSEX CROSS SECTIONS SHEET #52

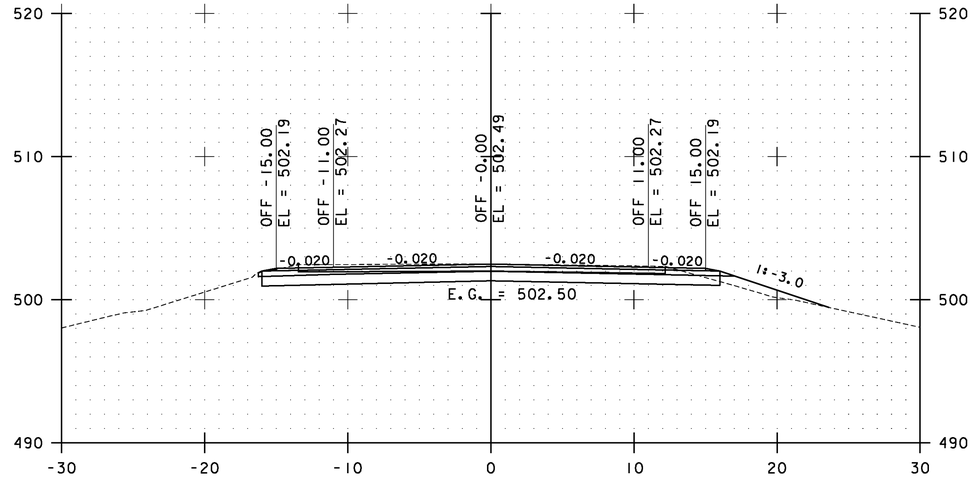
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs052.i

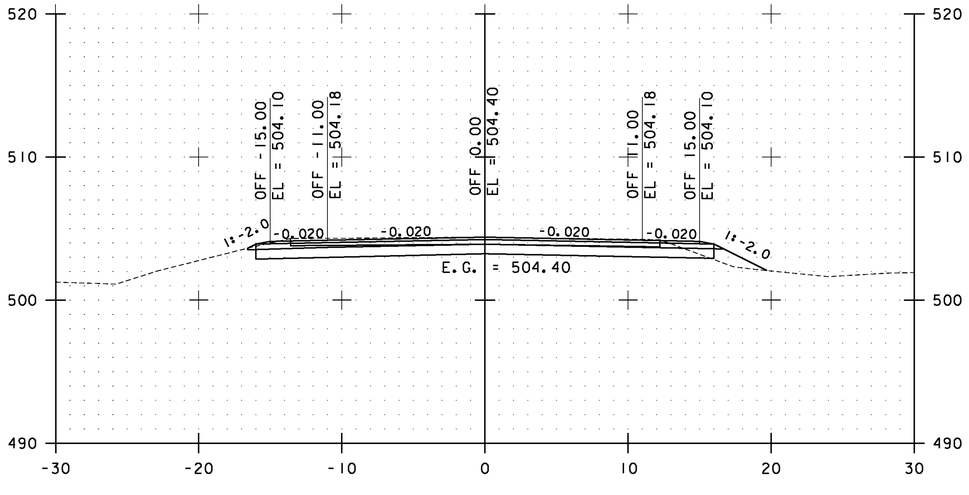
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 143 OF 239



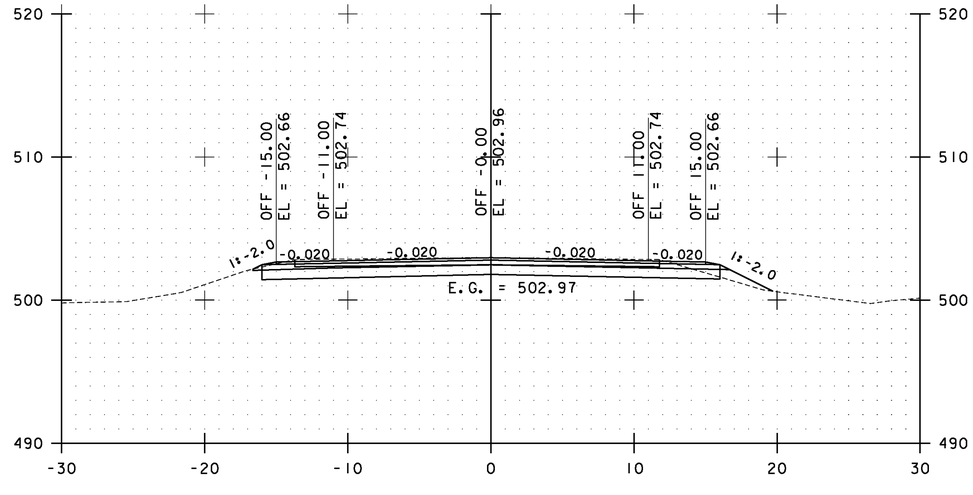
117+00.00



118+00.00



116+50.00



117+50.00

STA. 116+50.00 TO STA. 118+00.00

0 10 20
SCALE

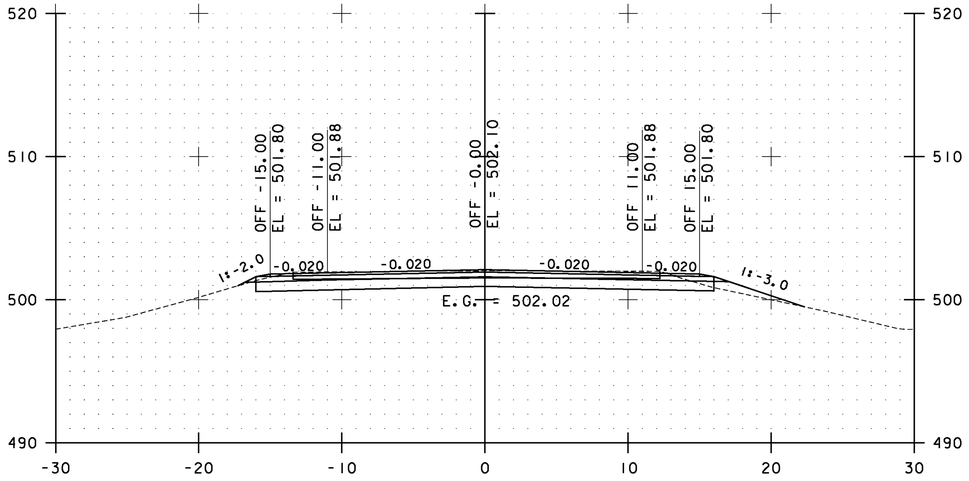
Stantec

ESSEX CROSS SECTIONS SHEET #53

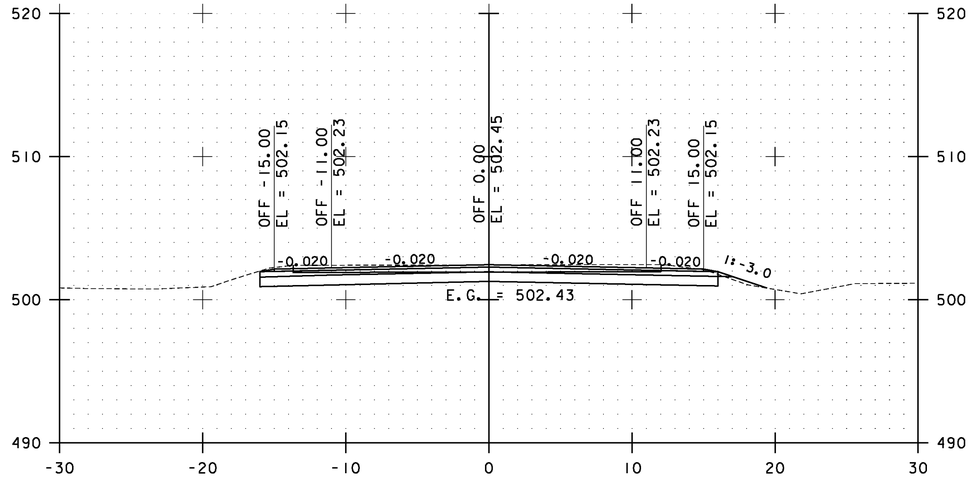
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs053.i

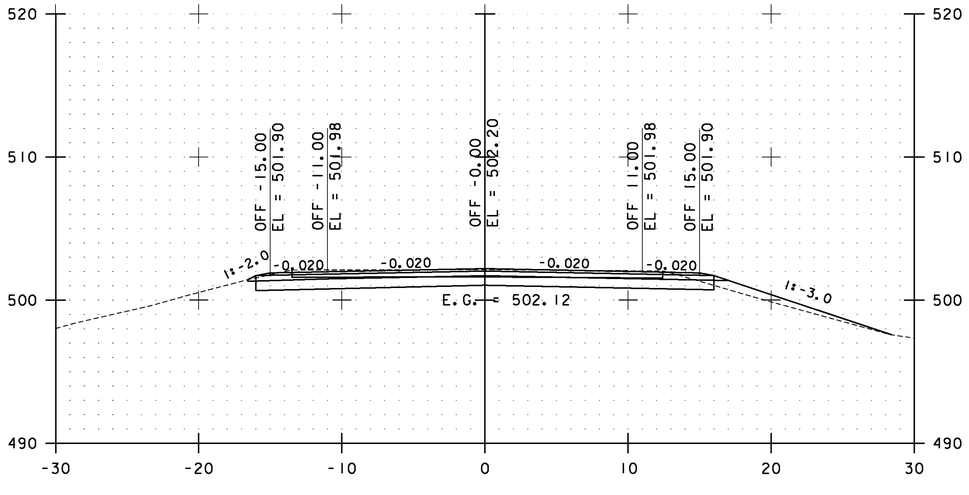
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 144 OF 239



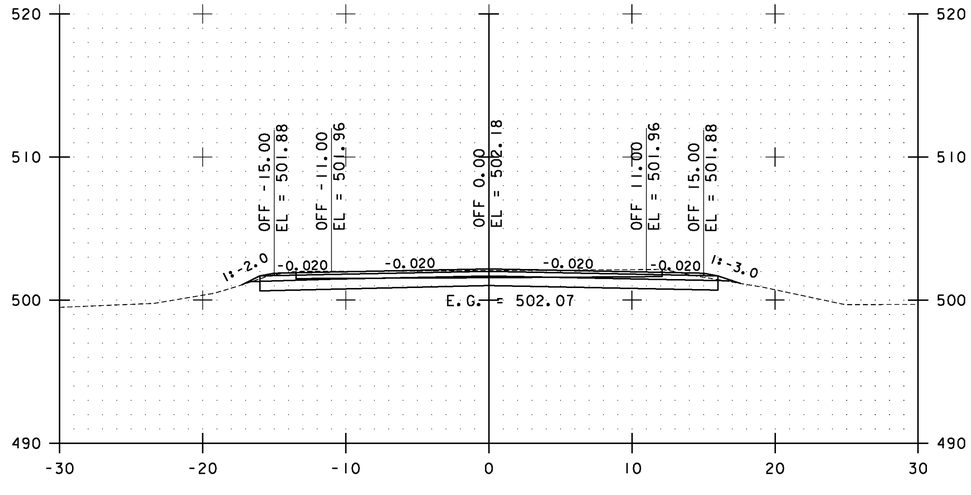
119+00.00



120+00.00



118+50.00



119+50.00

STA. 118+50.00 TO STA. 120+00.00

0 10 20
SCALE

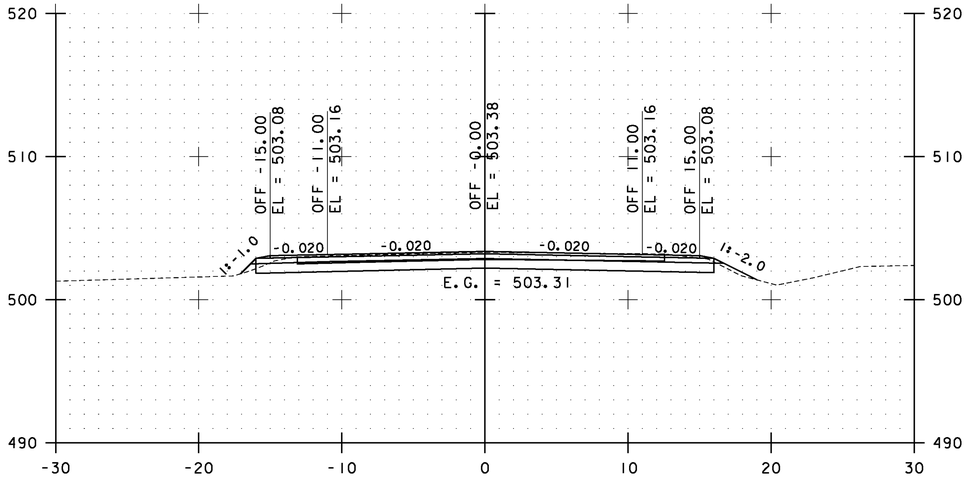
Stantec

ESSEX CROSS SECTIONS SHEET #54

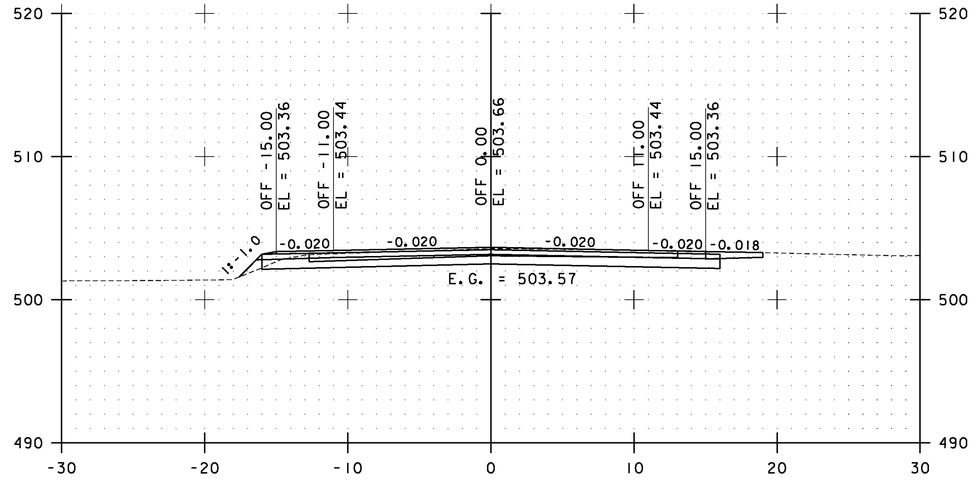
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs054.i

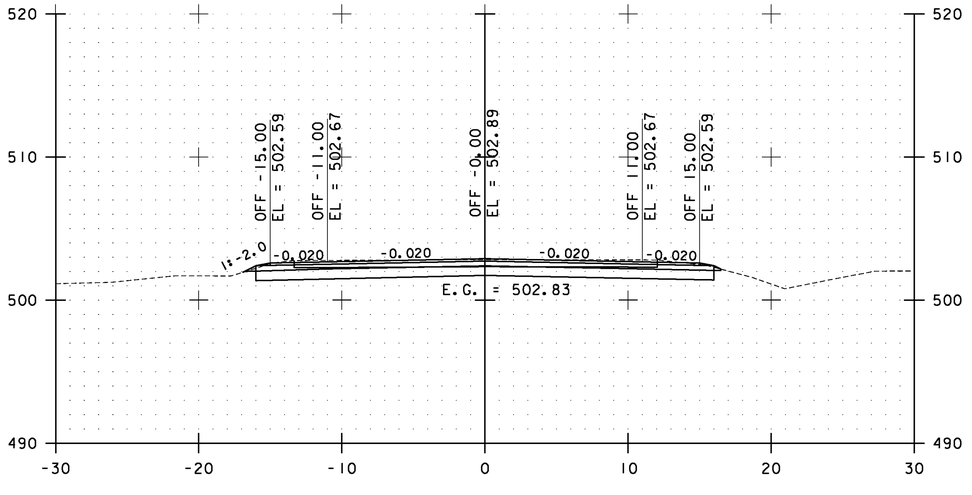
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 145 OF 239



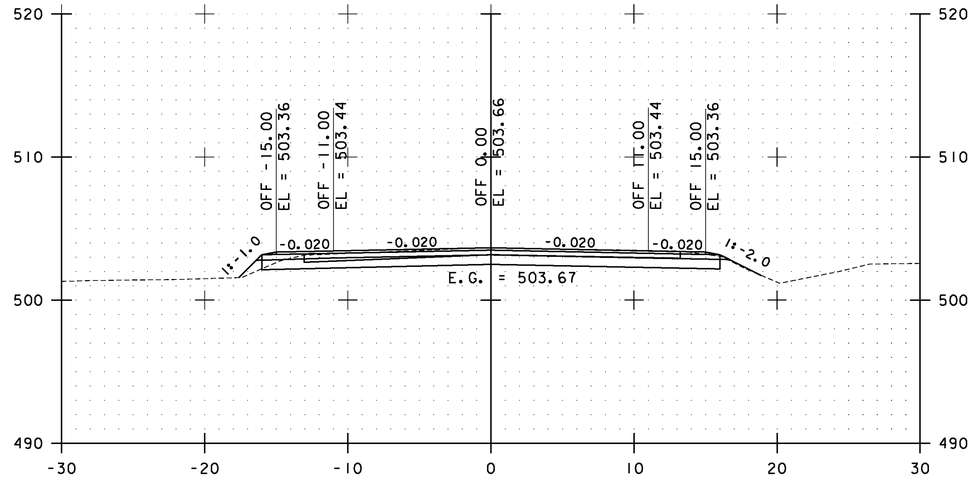
121+00.00



122+00.00



120+50.00



121+50.00

STA. 120+50.00 TO STA. 122+00.00

0 10 20
SCALE

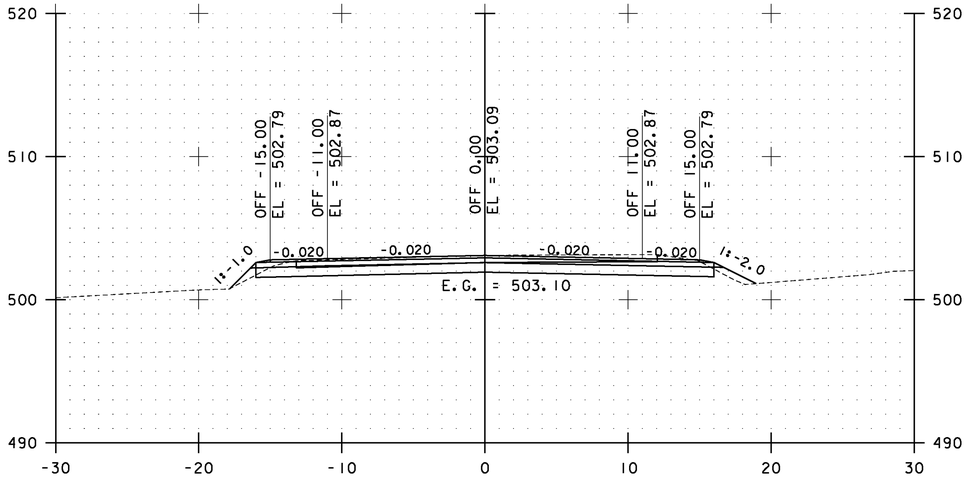
Stantec

ESSEX CROSS SECTIONS SHEET #55

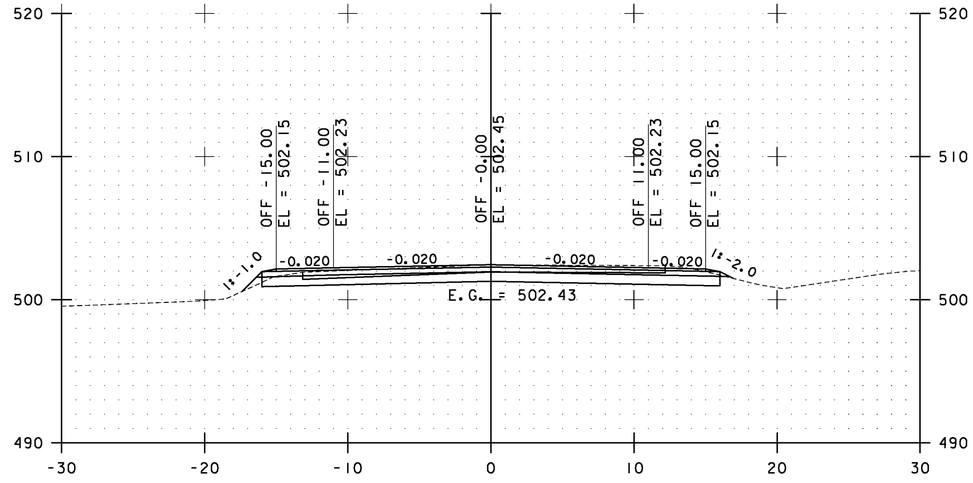
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs055.i

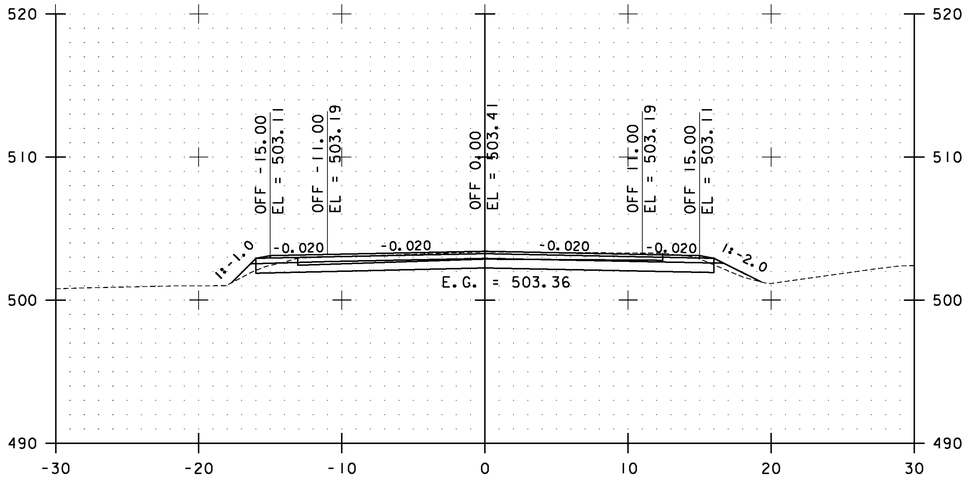
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 146 OF 239



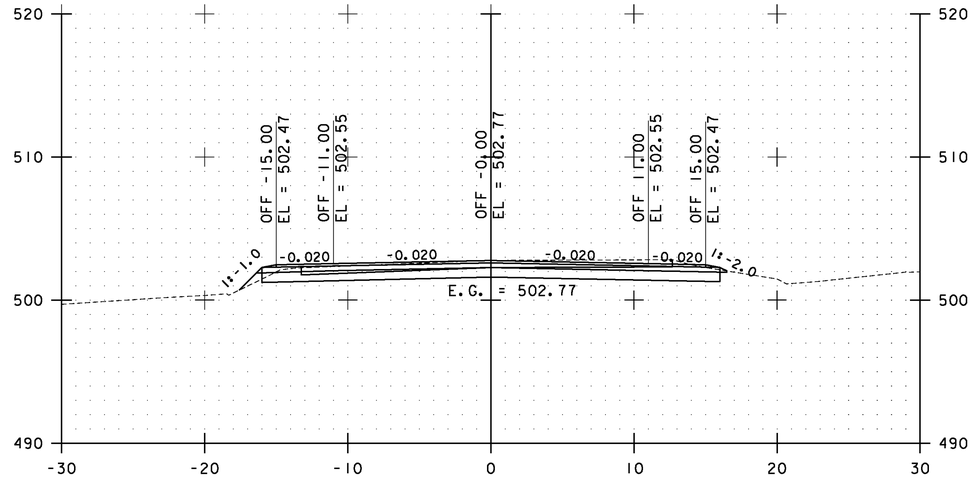
123+00.00



124+00.00



122+50.00



123+50.00

STA. 122+50.00 TO STA. 124+00.00

0 10 20
SCALE

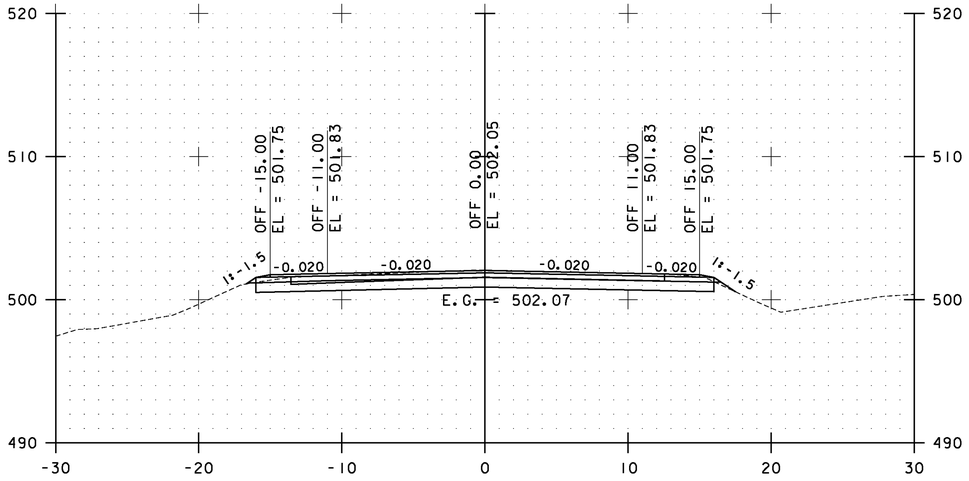
Stantec

ESSEX CROSS SECTIONS SHEET #56

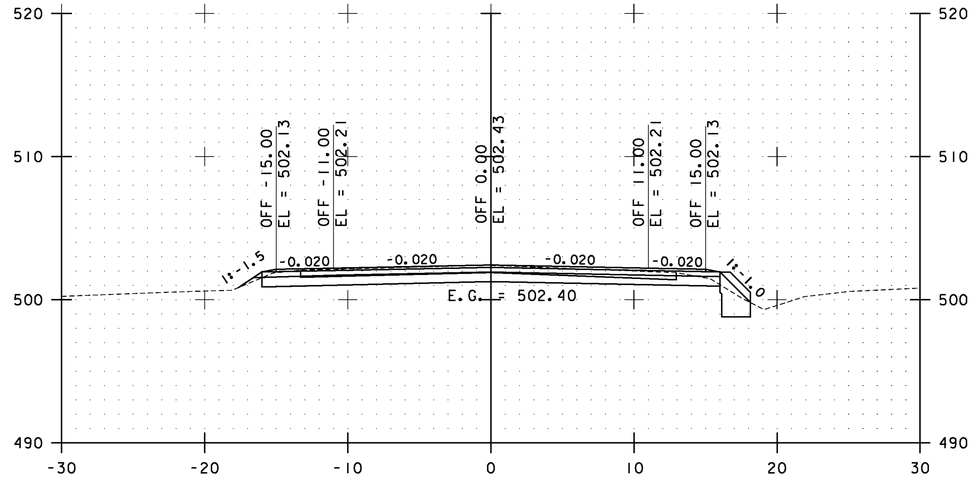
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs056.i

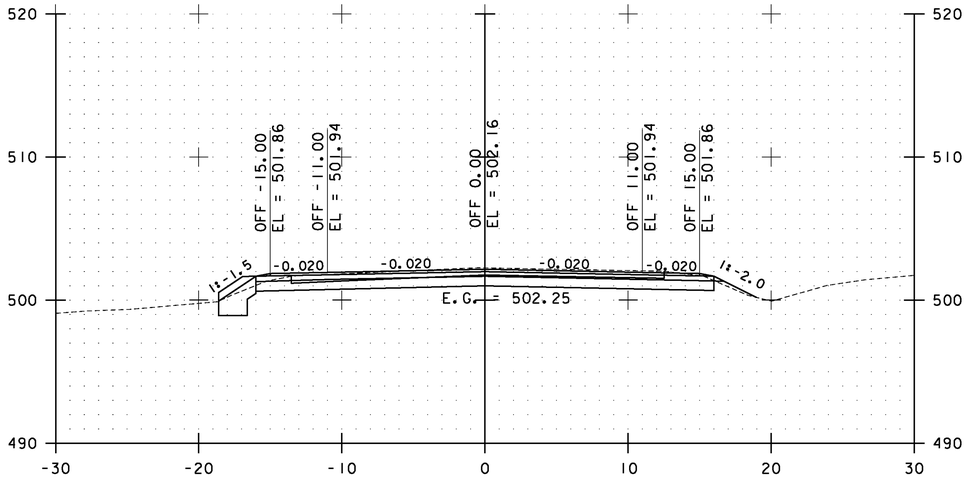
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 147 OF 239



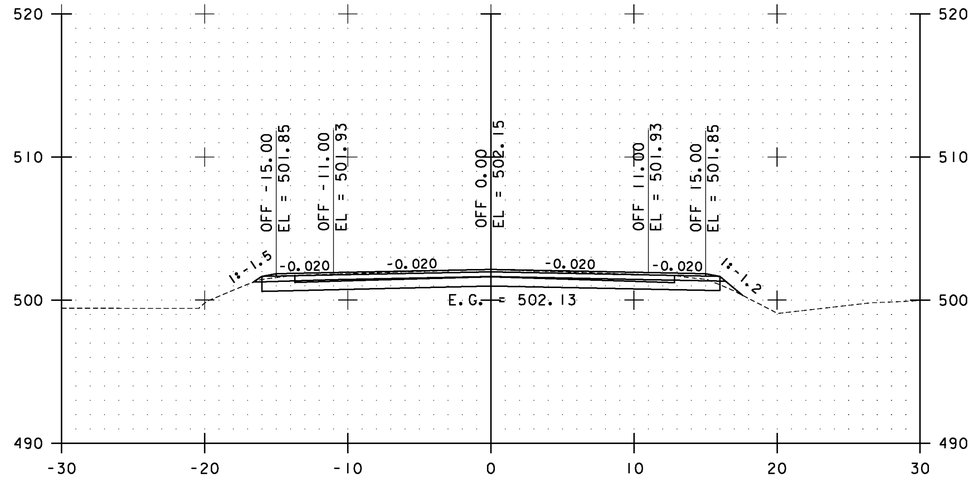
125+00.00



126+00.00



124+50.00



125+50.00

STA. 124+50.00 TO STA. 126+00.00

0 10 20
SCALE

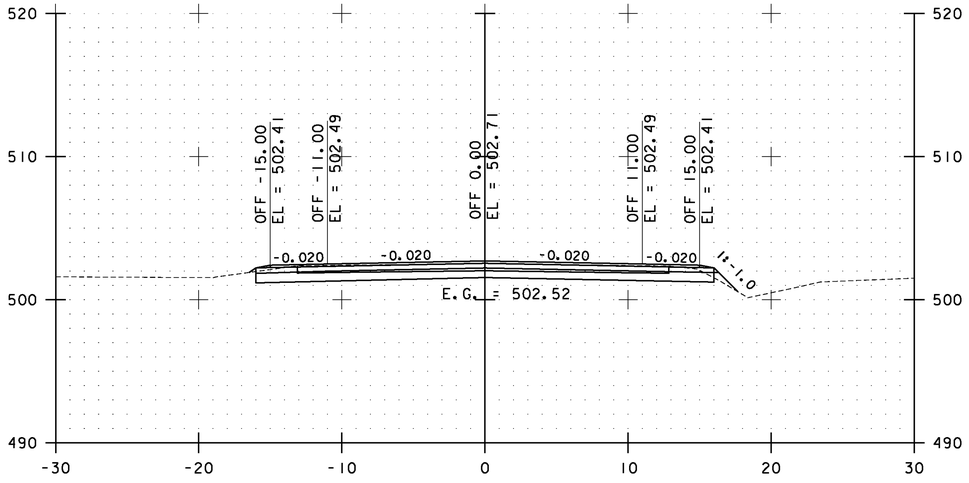
Stantec

ESSEX CROSS SECTIONS SHEET #57

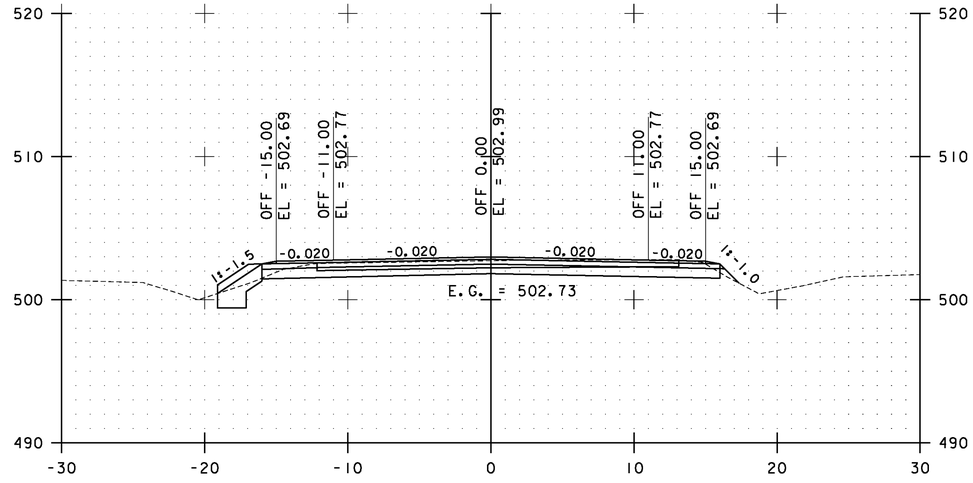
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs057.i

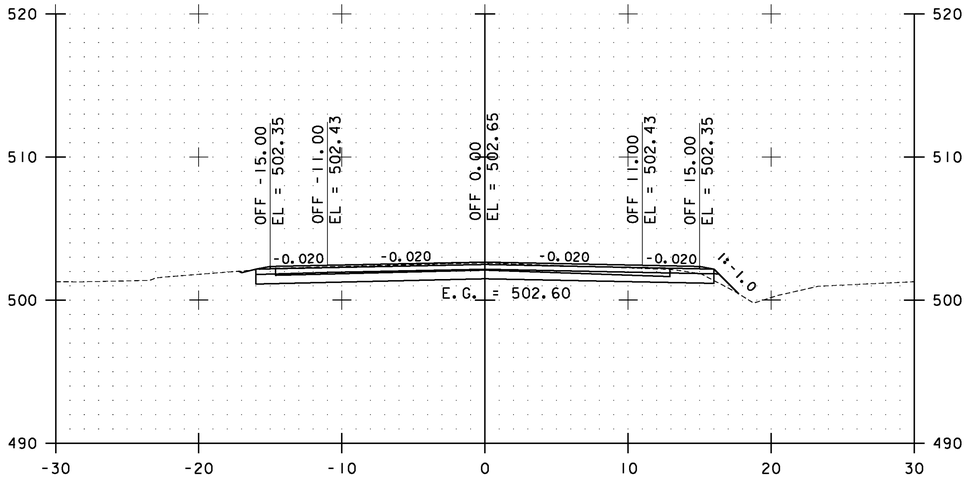
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 148 OF 239



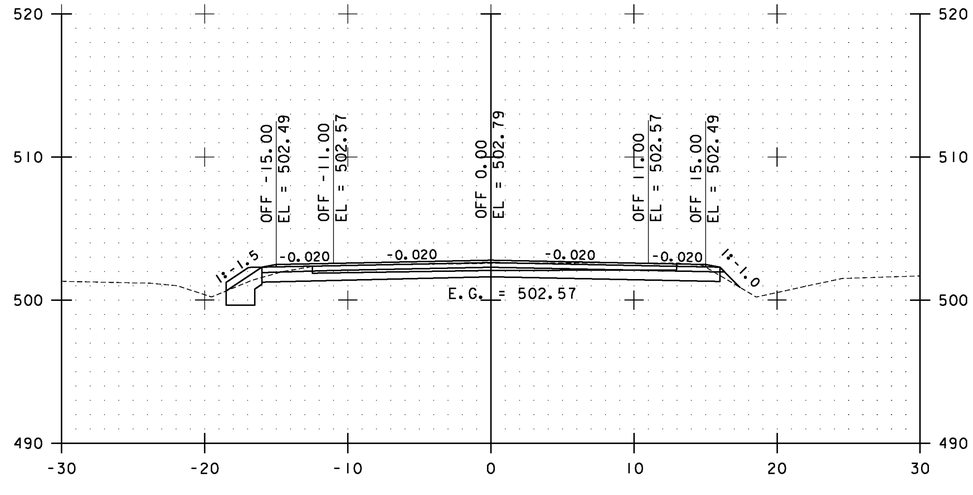
127+00.00



128+00.00



126+50.00



127+50.00

STA. 126+50.00 TO STA. 128+00.00

0 10 20
SCALE

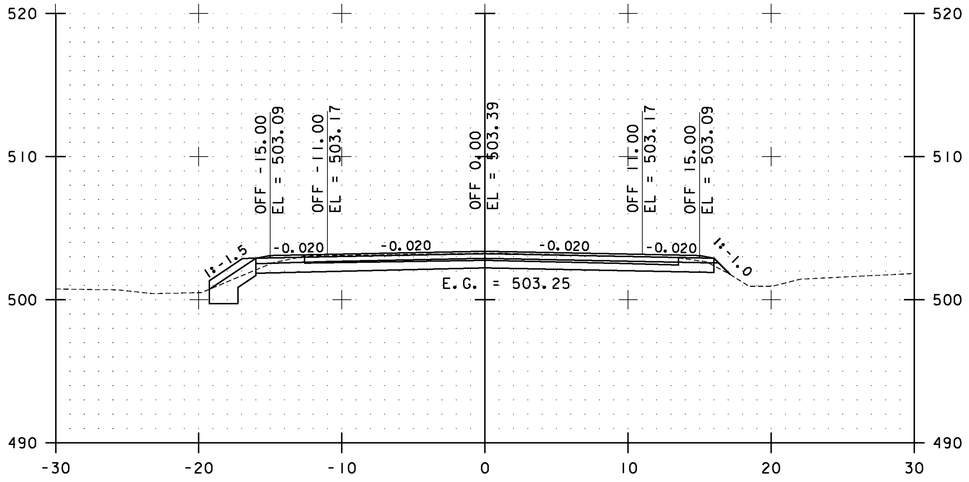
Stantec

ESSEX CROSS SECTIONS SHEET #58

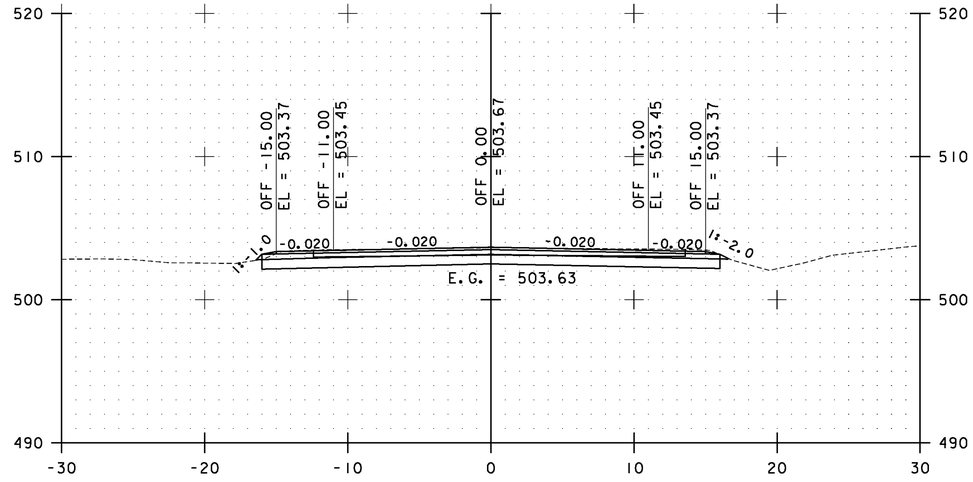
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs058.i

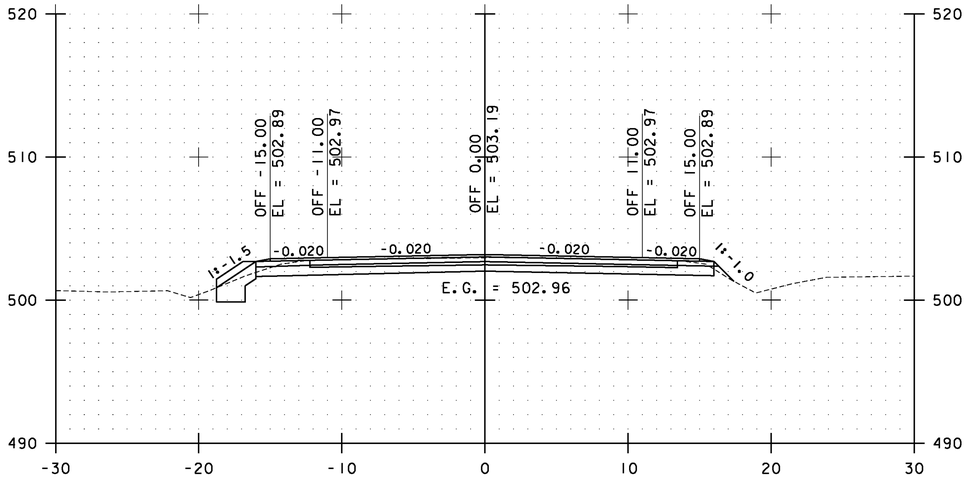
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 149 OF 239



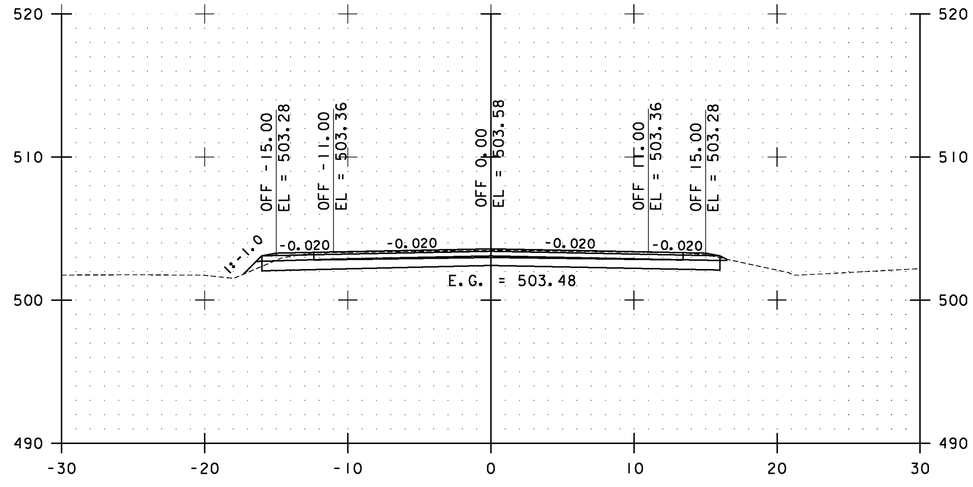
129+00.00



130+00.00



128+50.00



129+50.00

STA. 128+50.00 TO STA. 130+00.00

0 10 20
SCALE

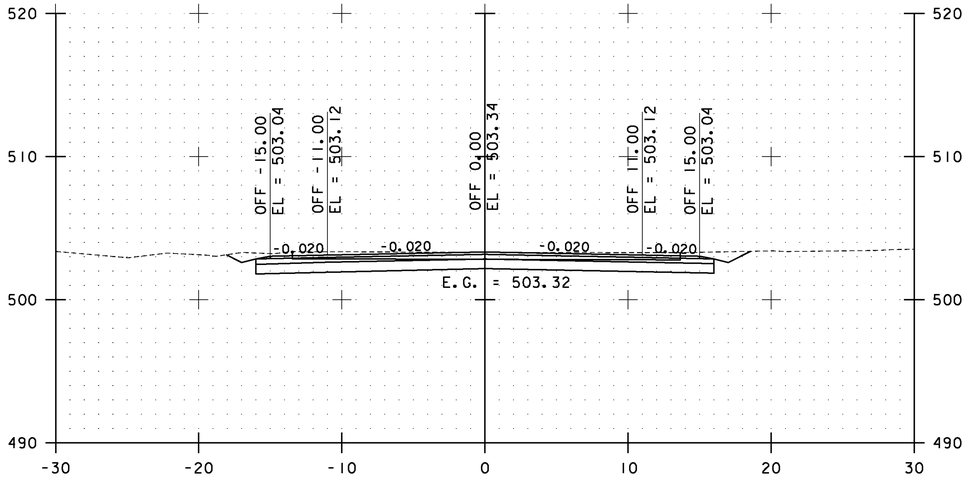
Stantec

ESSEX CROSS SECTIONS SHEET #59

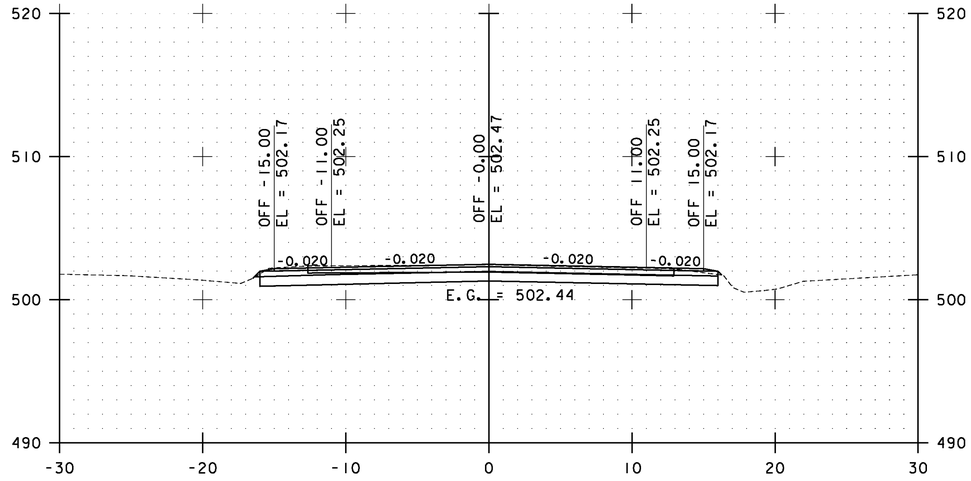
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs059.i

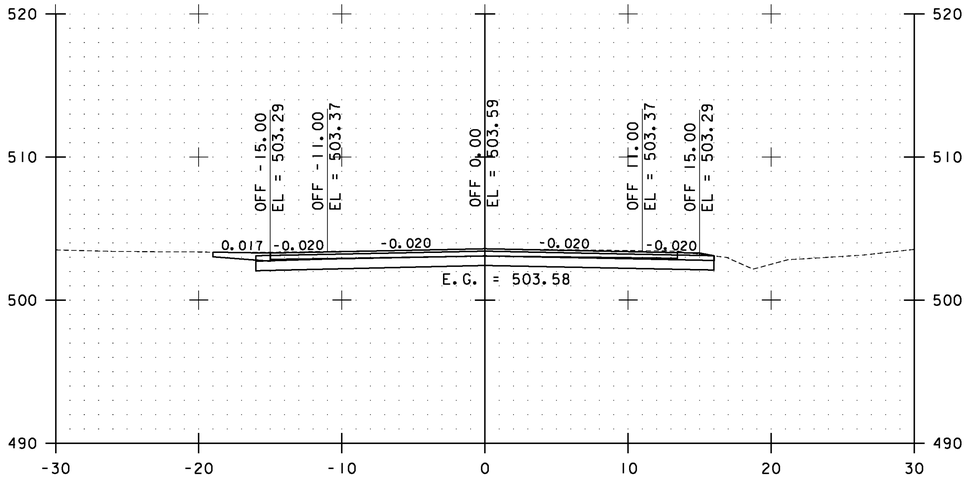
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 150 OF 239



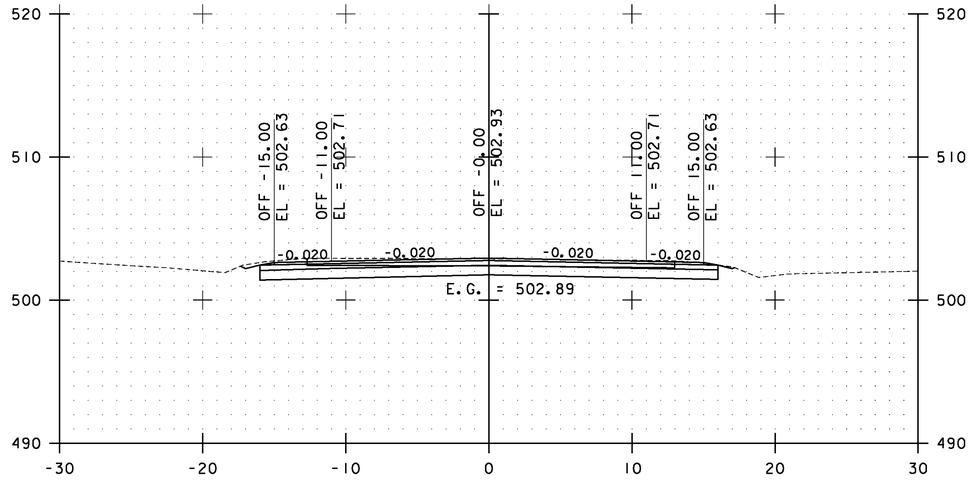
131+00.00



132+00.00



130+50.00



131+50.00

STA. 130+50.00 TO STA. 132+00.00

0 10 20
SCALE

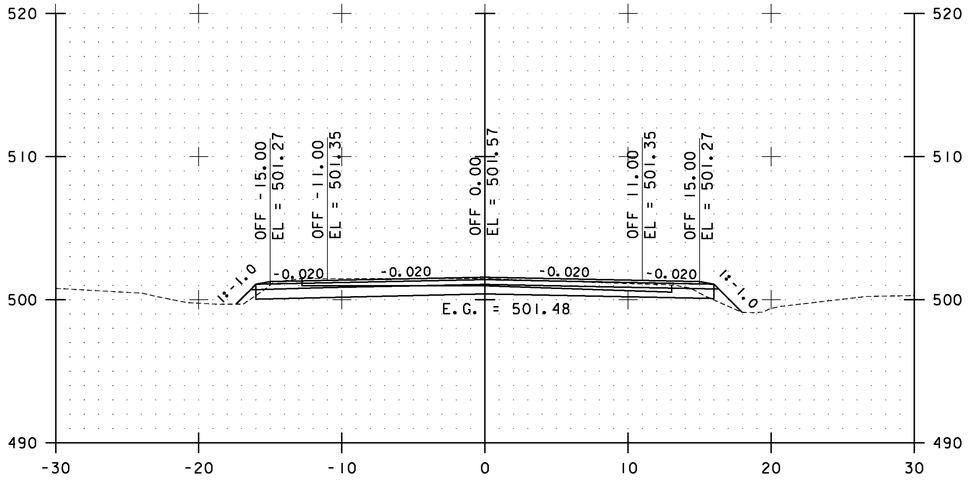
Stantec

ESSEX CROSS SECTIONS SHEET #60

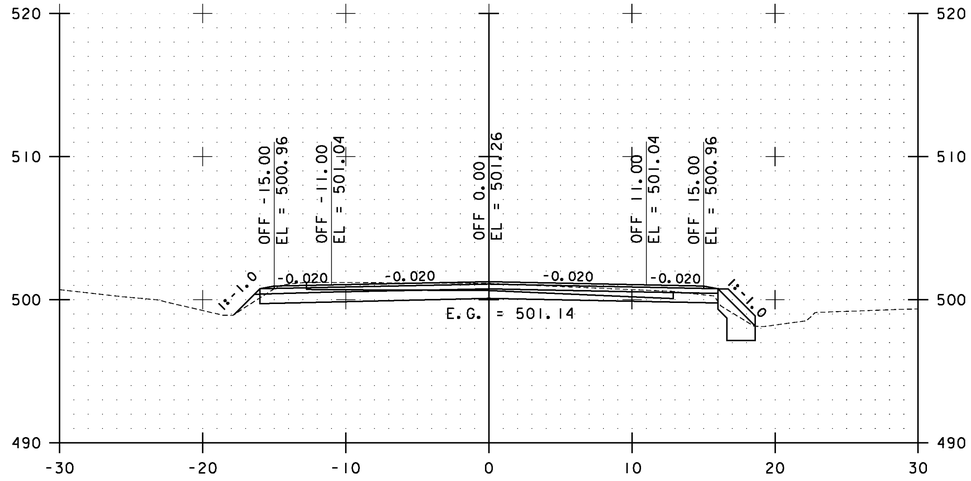
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs060.i

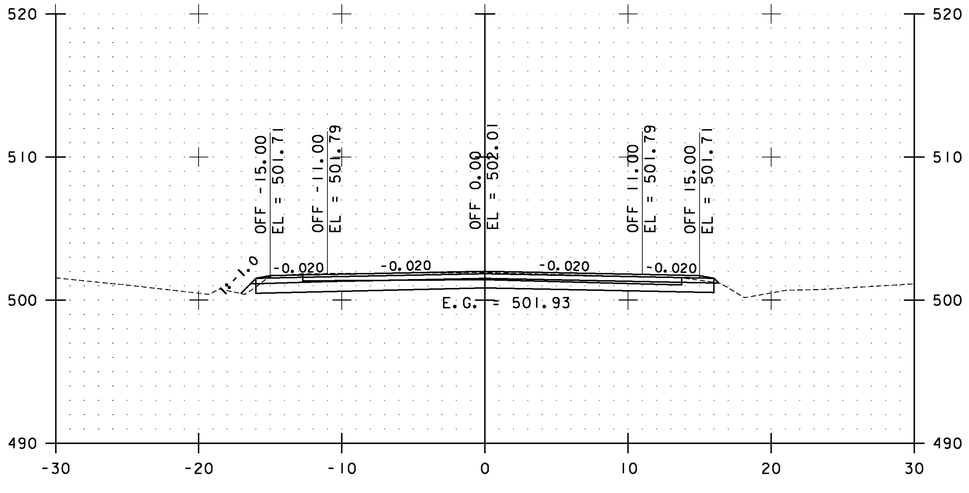
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 151 OF 239



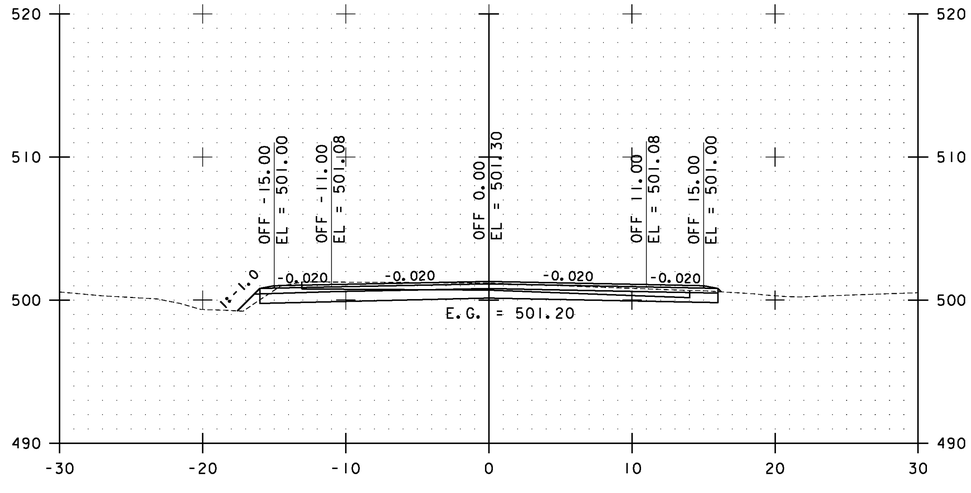
133+00.00



134+00.00



132+50.00



133+50.00

STA. 132+50.00 TO STA. 134+00.00

0 10 20
SCALE

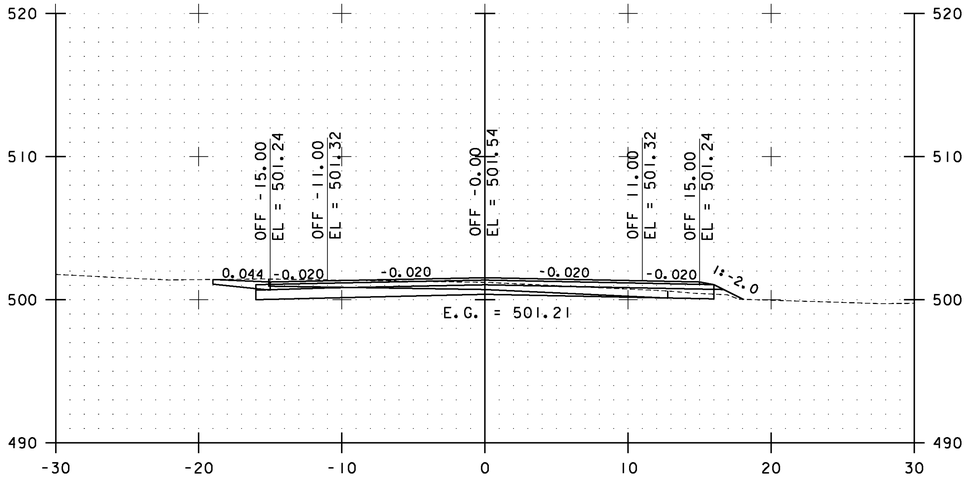
Stantec

ESSEX CROSS SECTIONS SHEET #61

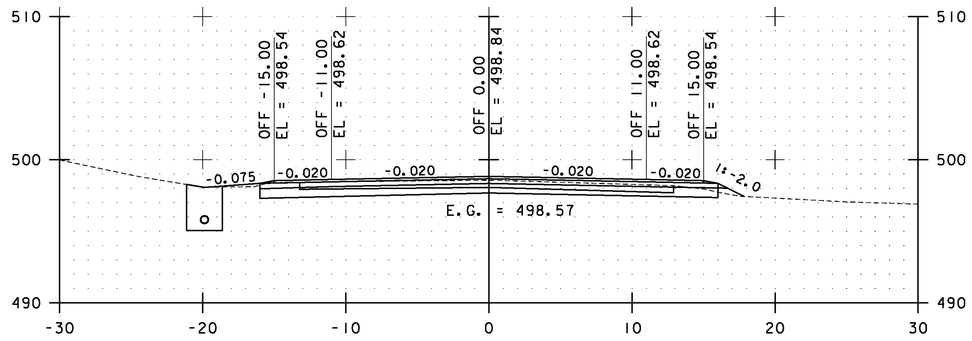
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs061.i

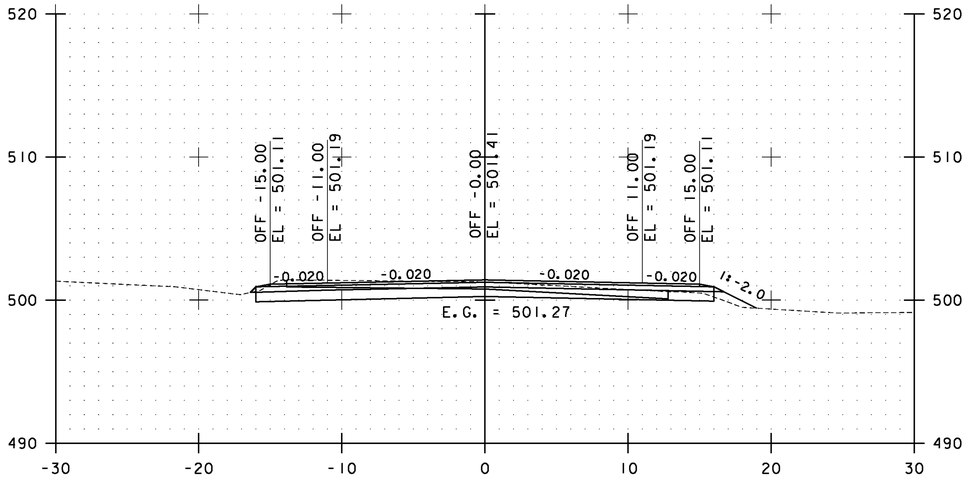
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 152 OF 239



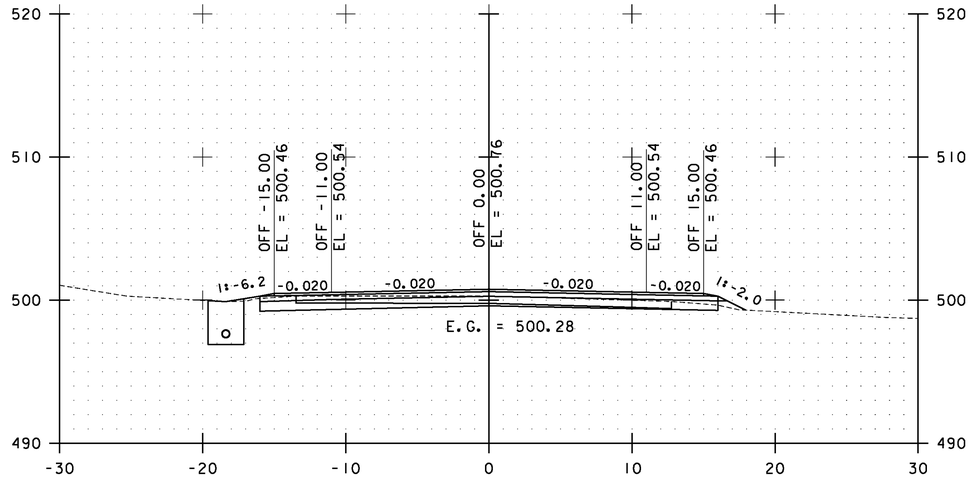
135+00.00



136+00.00



134+50.00



135+50.00

STA. 134+50.00 TO STA. 136+00.00

0 10 20
SCALE

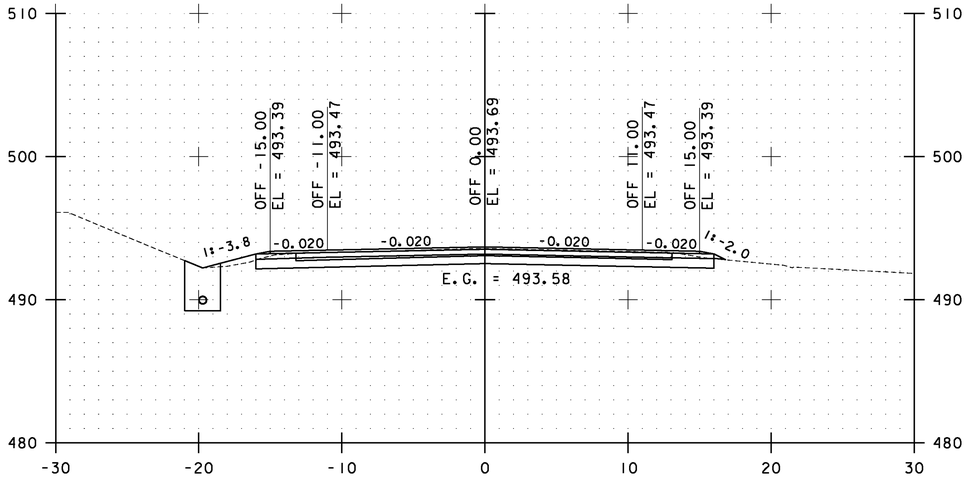
Stantec

ESSEX CROSS SECTIONS SHEET #62

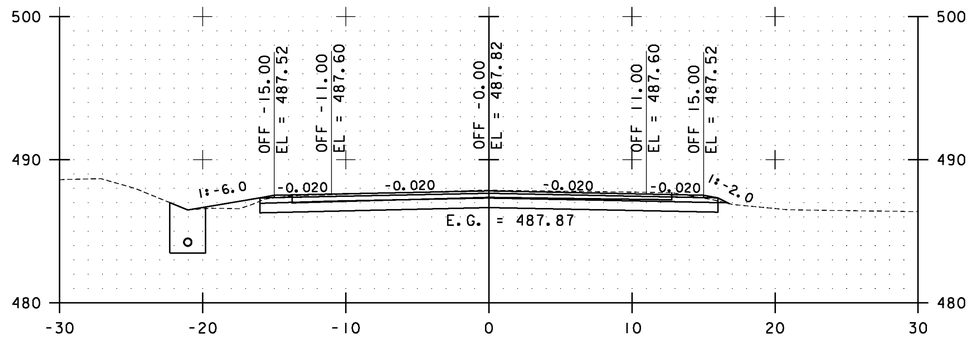
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs062.i

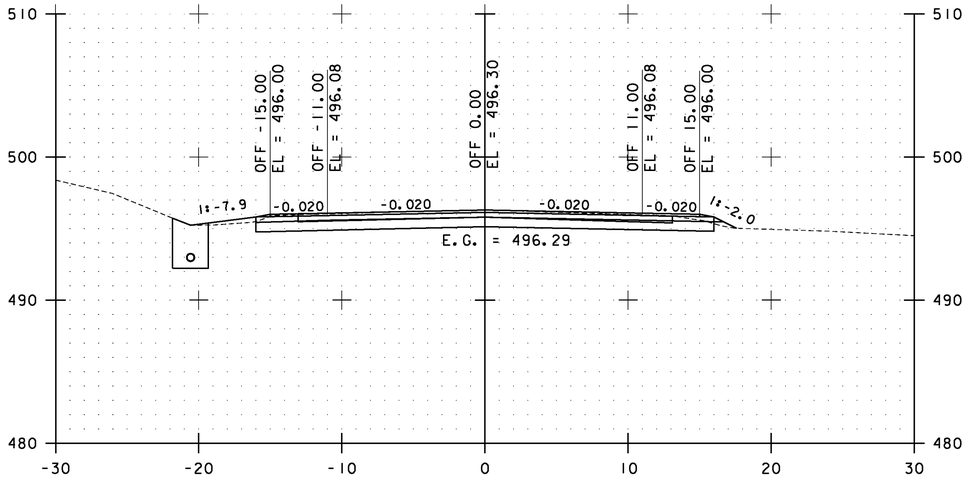
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 153 OF 239



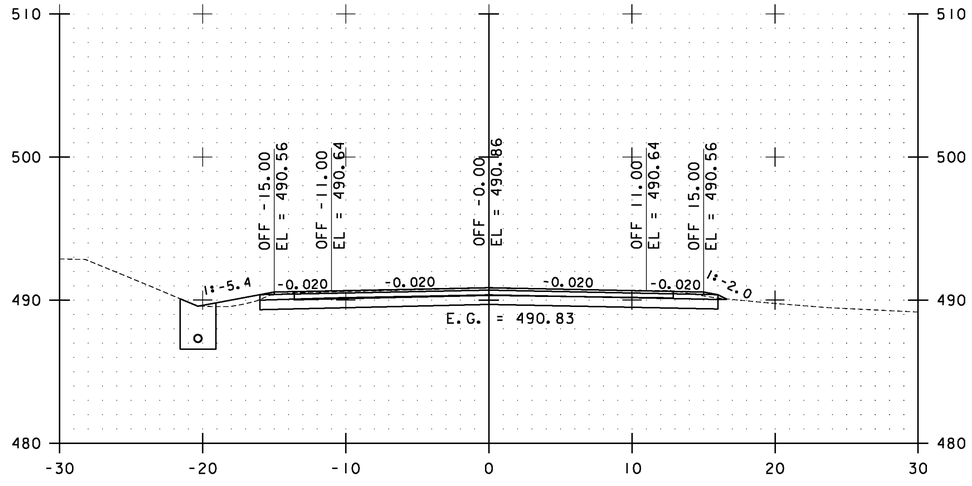
137+00.00



138+00.00



136+50.00



137+50.00

STA. 136+50.00 TO STA. 138+00.00

0 10 20
SCALE

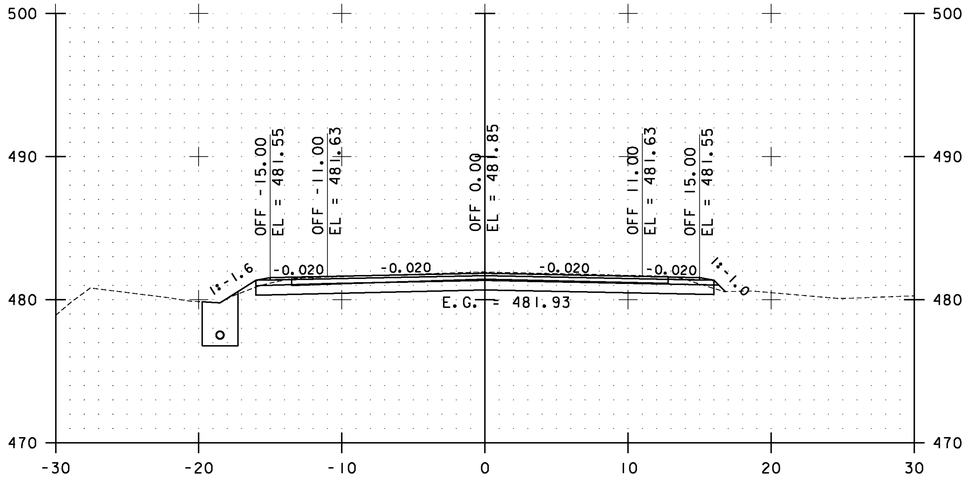
Stantec

ESSEX CROSS SECTIONS SHEET #63

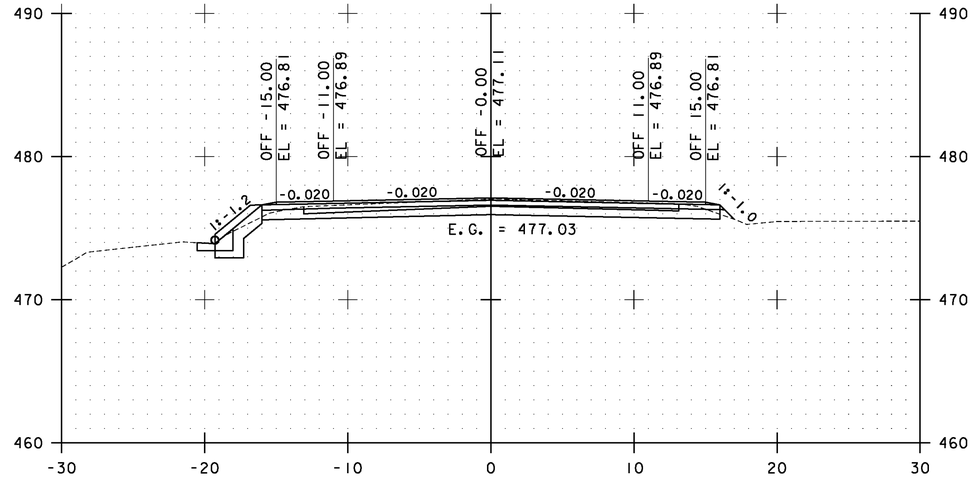
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs063.i

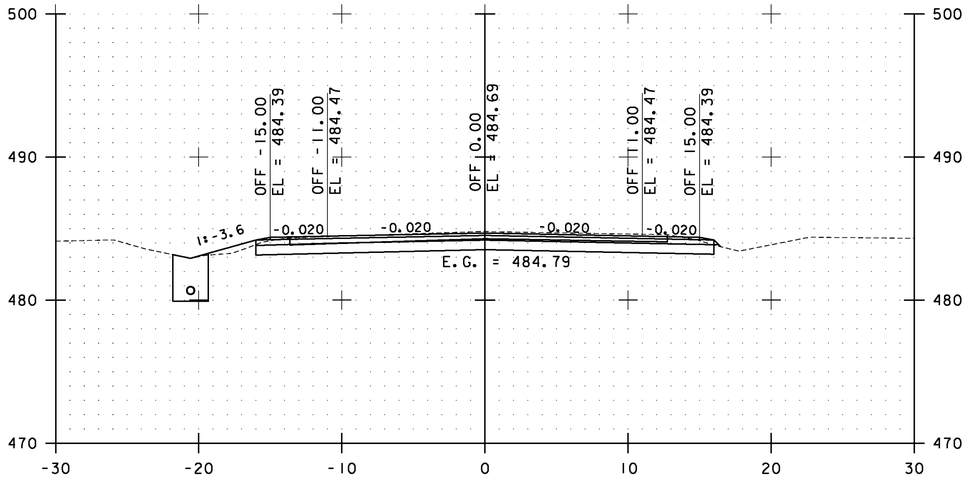
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 154 OF 239



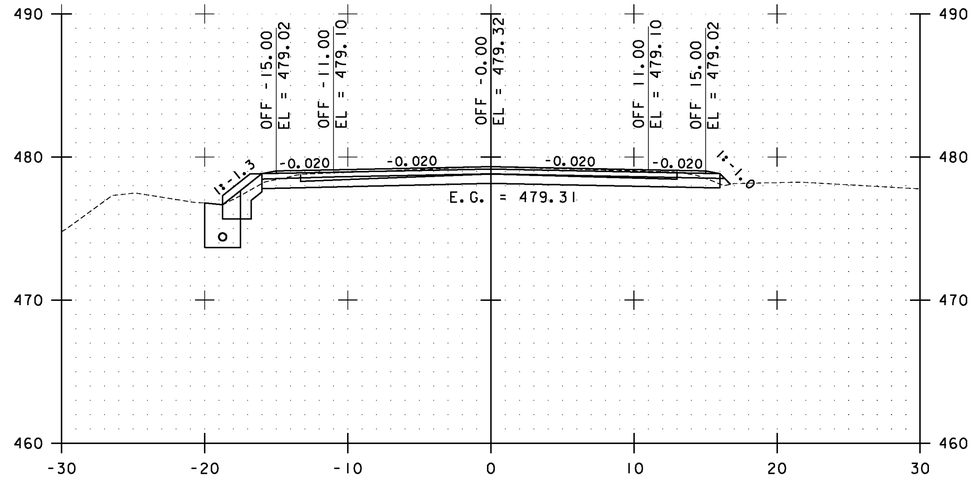
139+00.00



140+00.00



138+50.00



139+50.00

STA. 138+50.00 TO STA. 140+00.00

0 10 20
SCALE

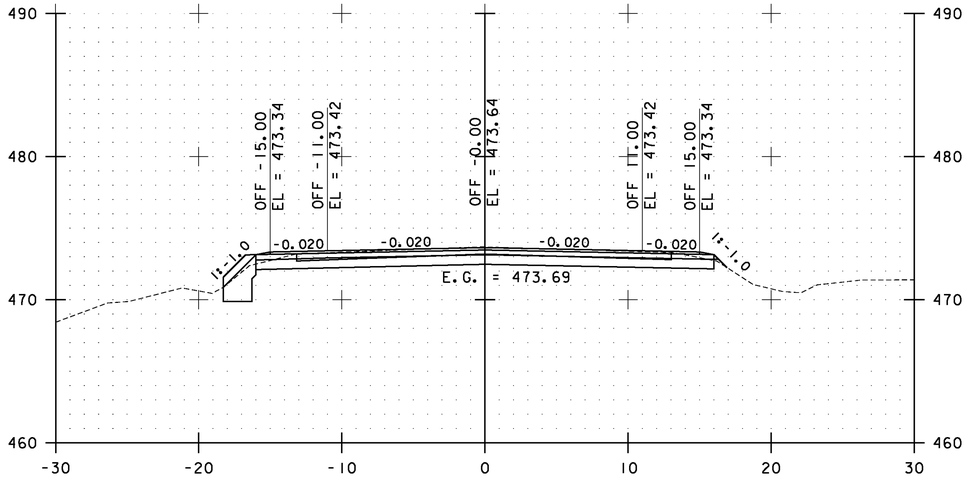
Stantec

ESSEX CROSS SECTIONS SHEET #64

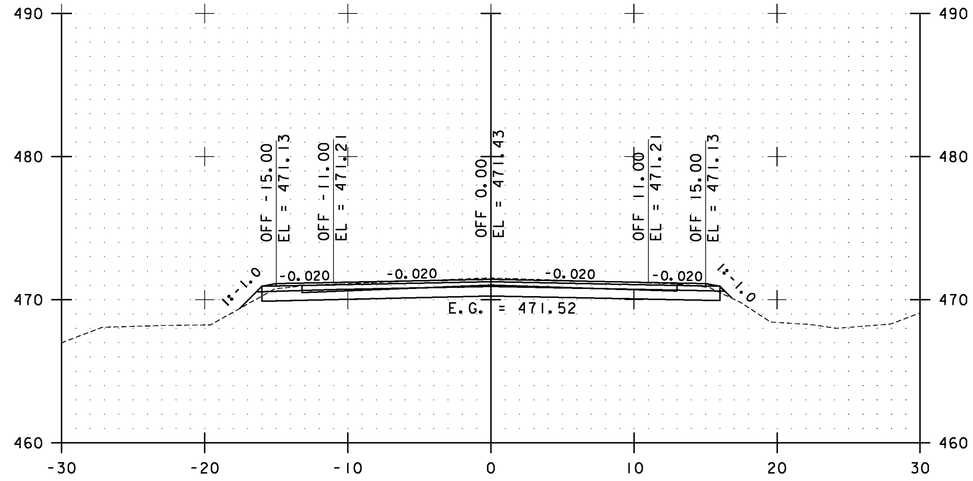
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs064.i

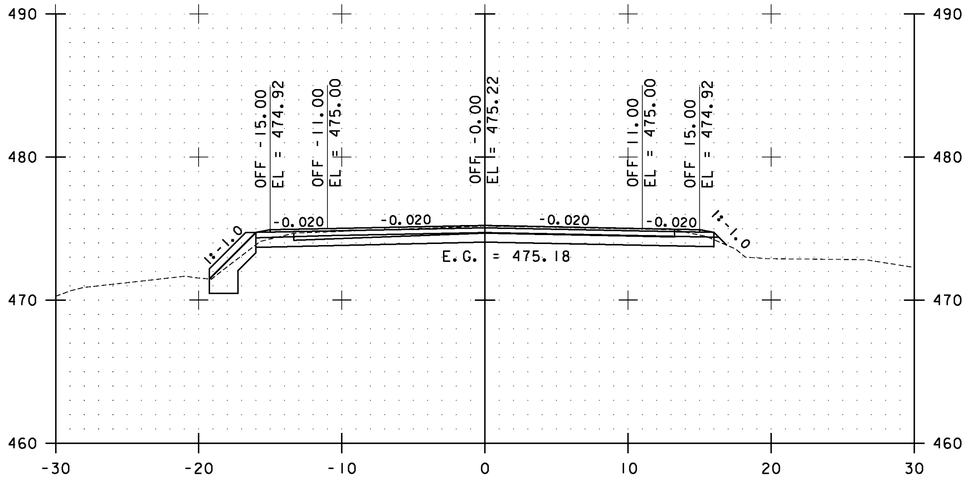
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 155 OF 239



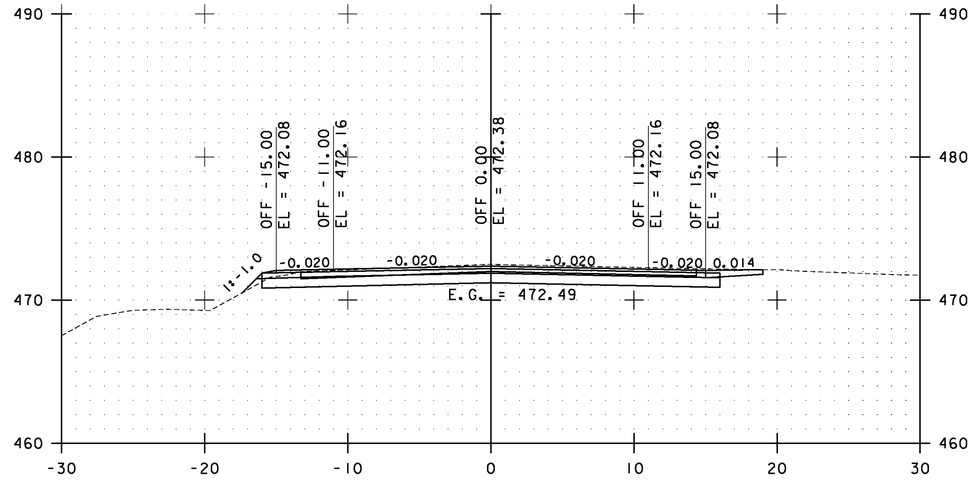
141+00.00



142+00.00



140+50.00



141+50.00

STA. 140+50.00 TO STA. 142+00.00

0 10 20
SCALE

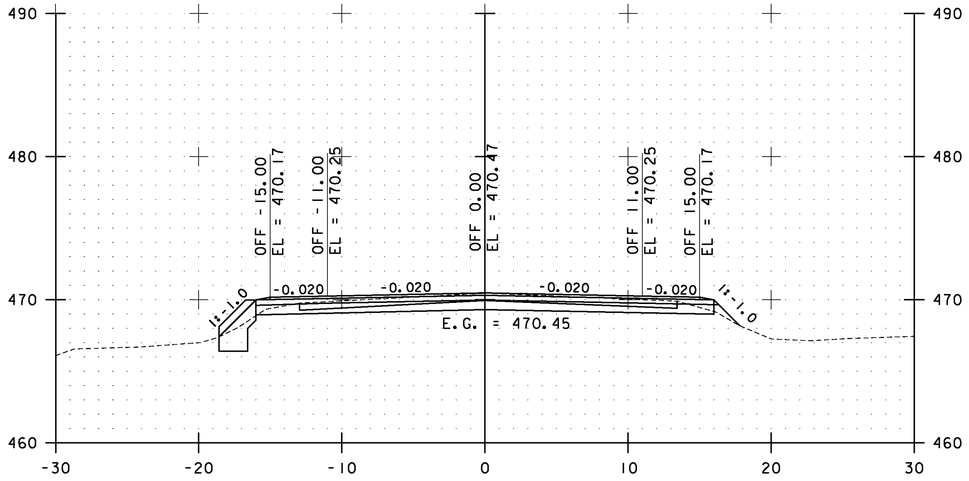
Stantec

ESSEX CROSS SECTIONS SHEET #65

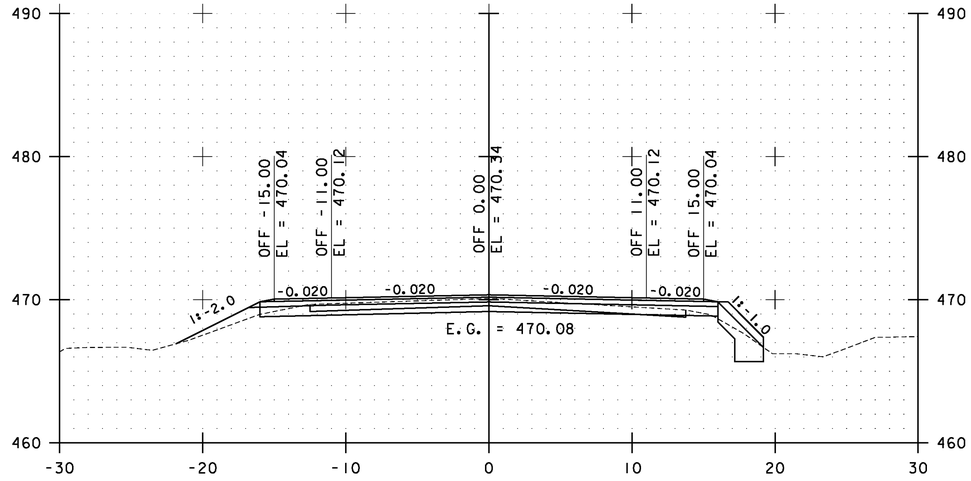
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs065.i

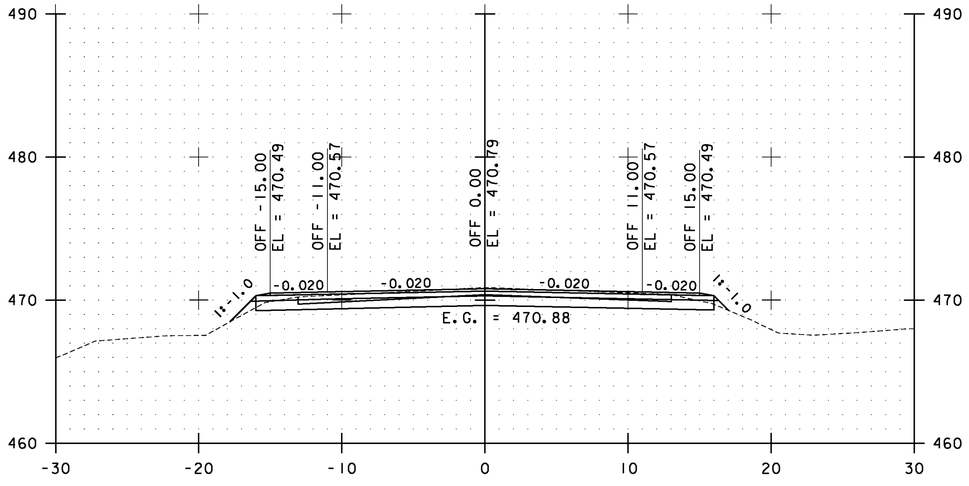
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 156 OF 239



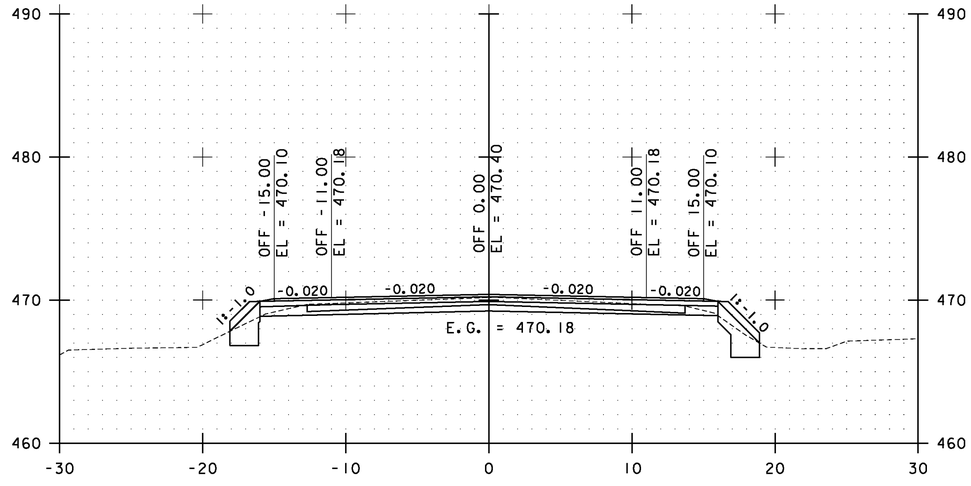
143+00.00



144+00.00



142+50.00



143+50.00

STA. 142+50.00 TO STA. 144+00.00

0 10 20
SCALE

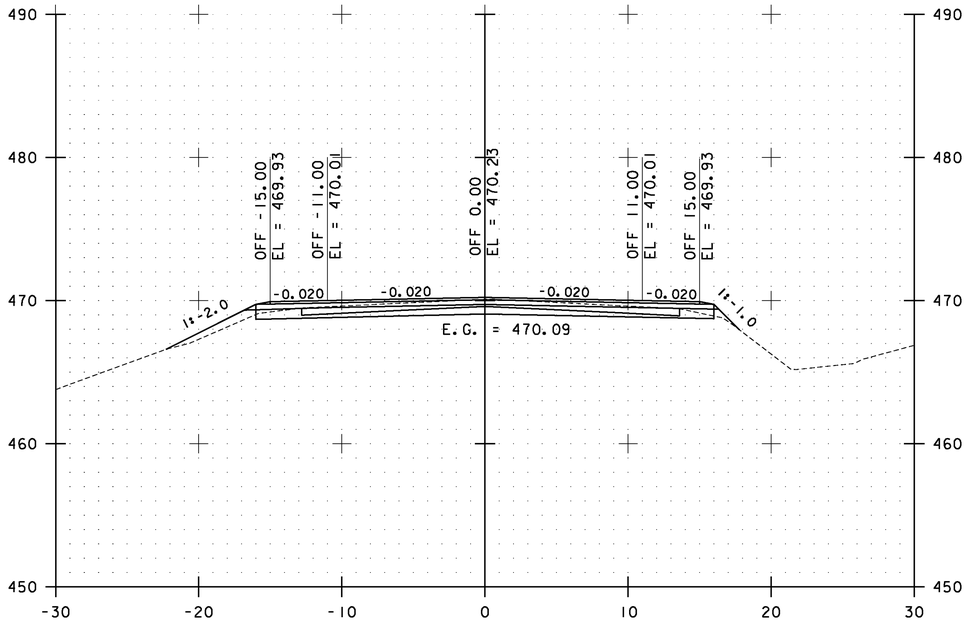
Stantec

ESSEX CROSS SECTIONS SHEET #66

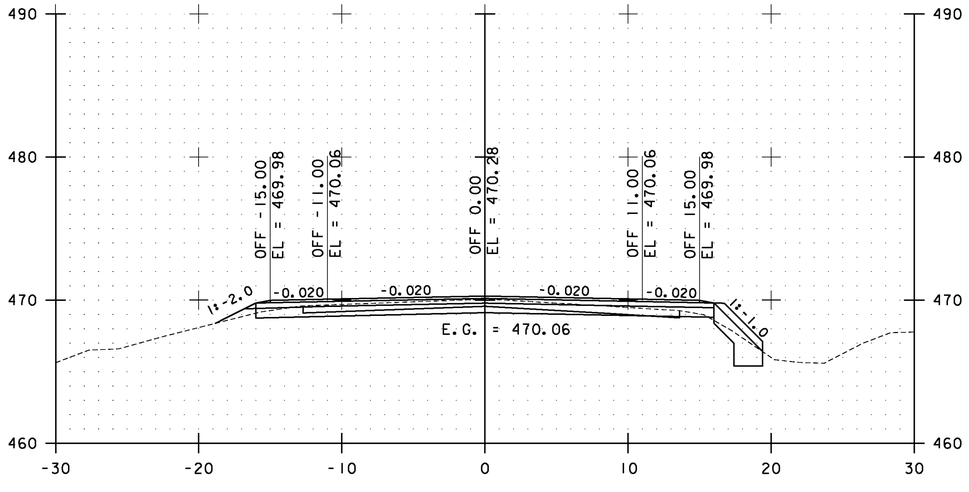
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs066.i

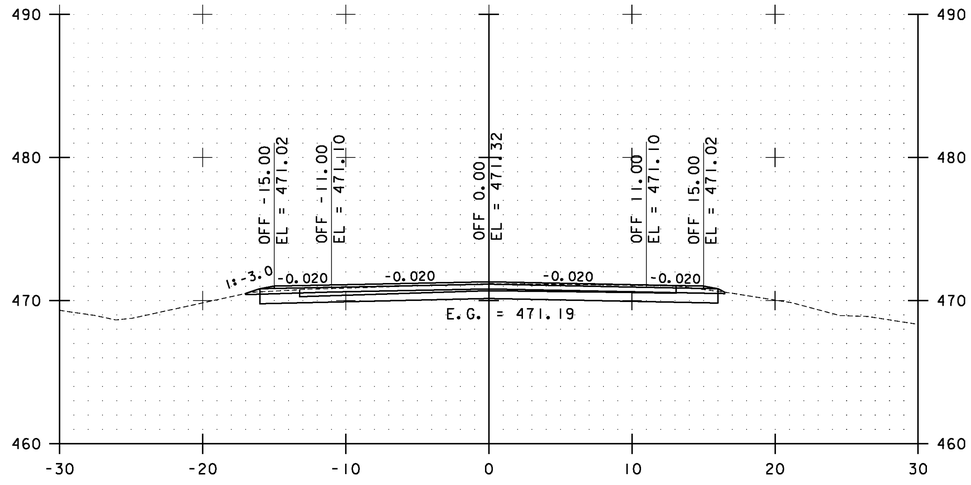
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 157 OF 239



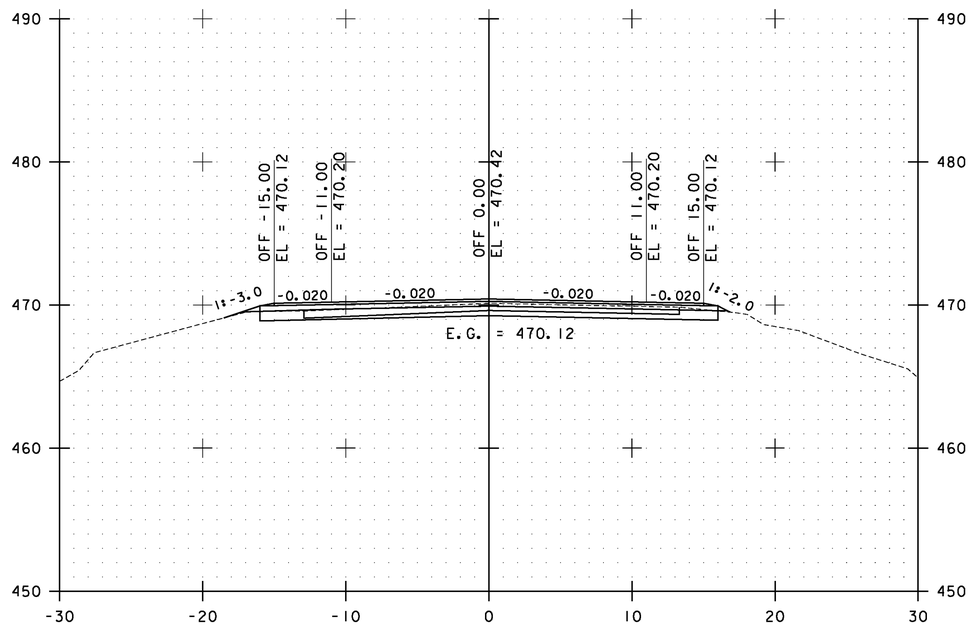
145+00.00



144+50.00



146+00.00



145+50.00

STA. 144+50.00 TO STA. 146+00.00

0 10 20
SCALE

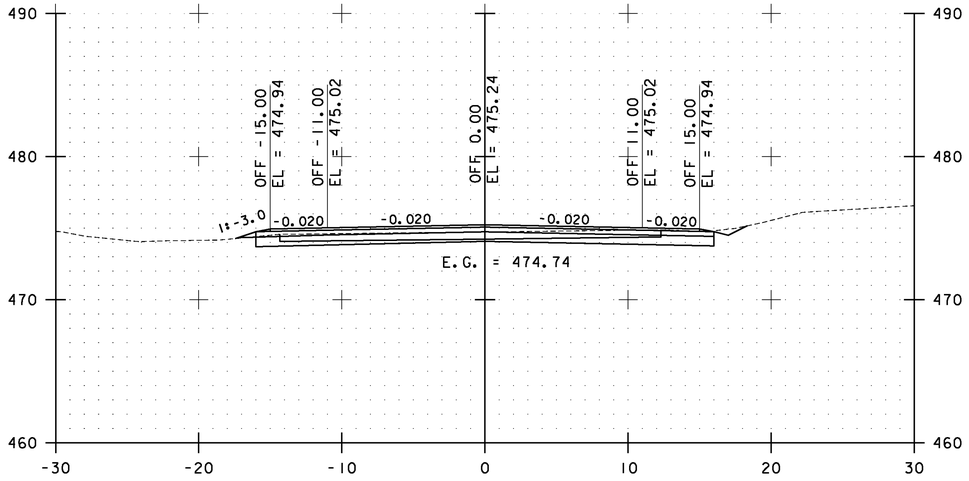
Stantec

ESSEX CROSS SECTIONS SHEET #67

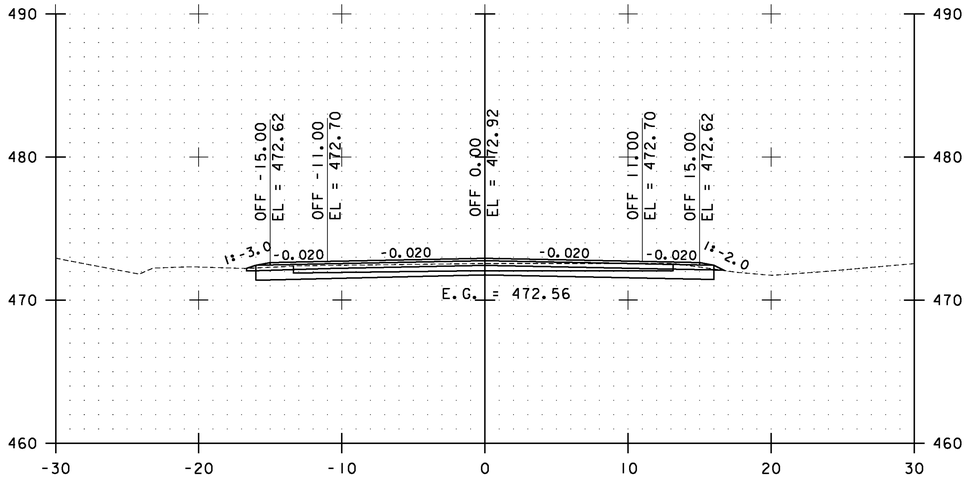
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs067.i

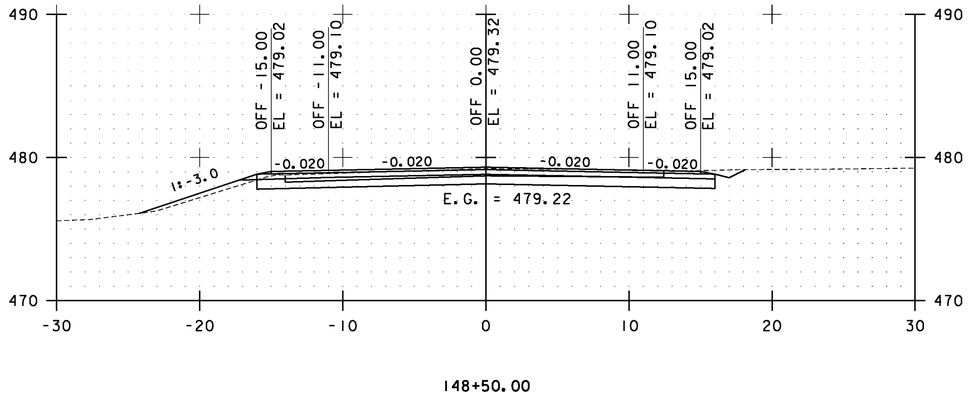
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 158 OF 239



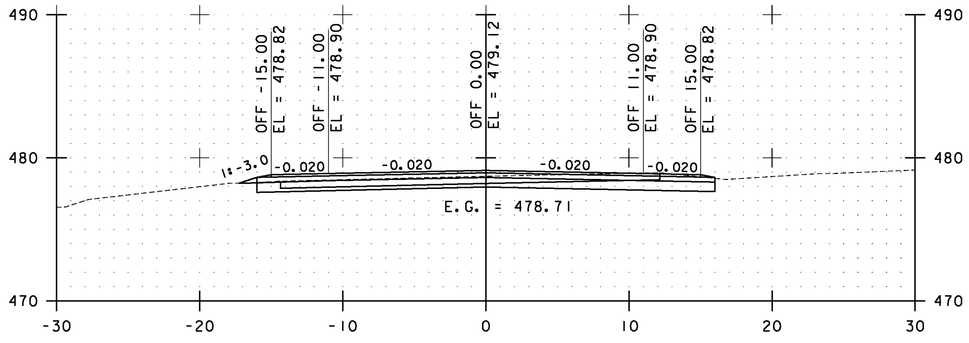
147+00.00



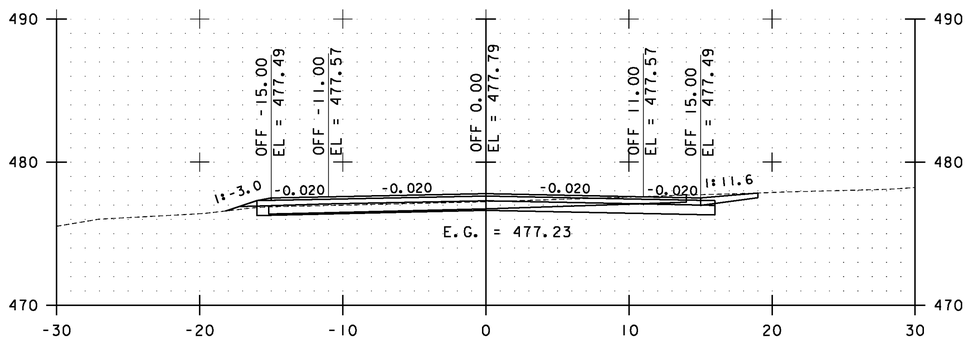
146+50.00



148+50.00



148+00.00



147+50.00

STA. 146+50.00 TO STA. 148+50.00

0 10 20
SCALE

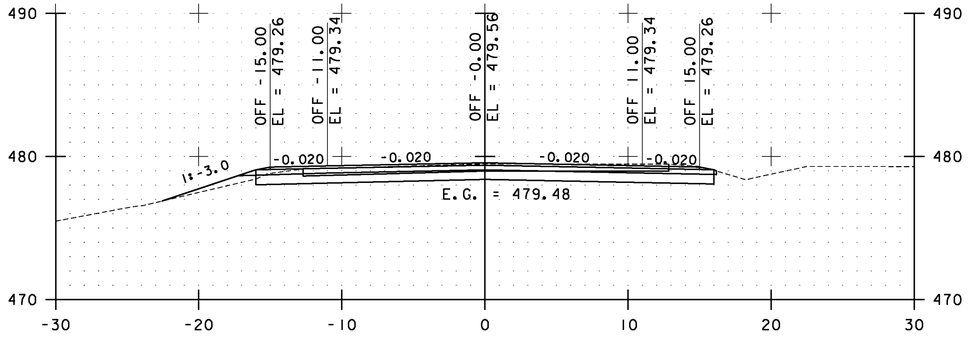
Stantec

ESSEX CROSS SECTIONS SHEET #68

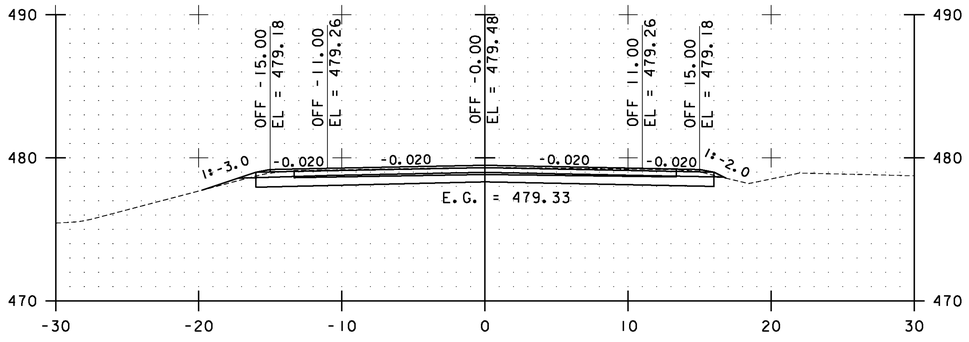
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs068.i

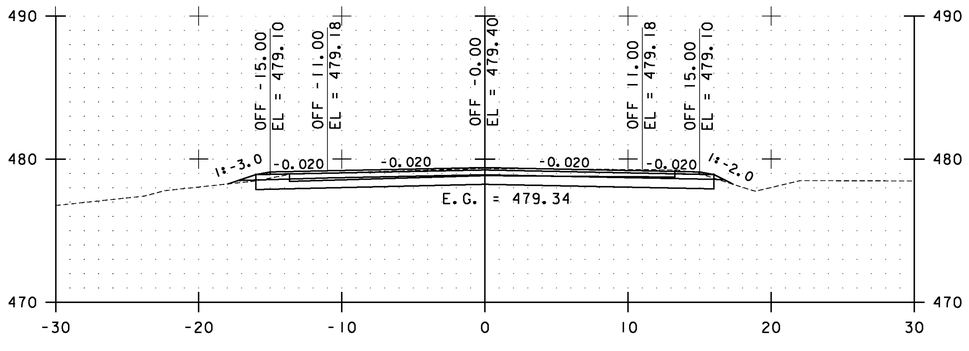
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 159 OF 239



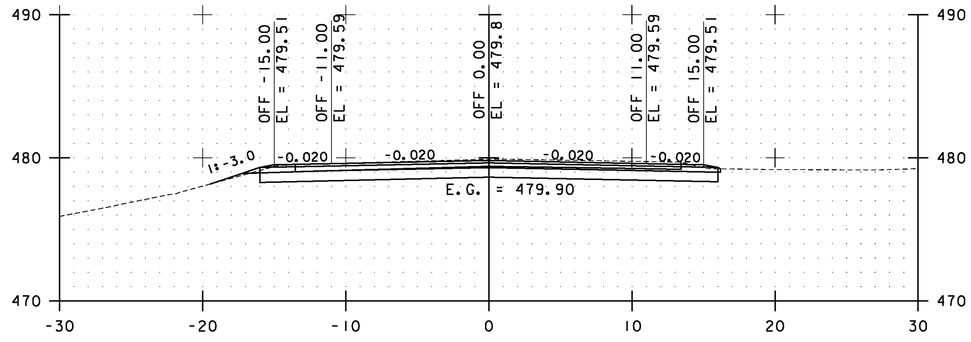
150+00.00



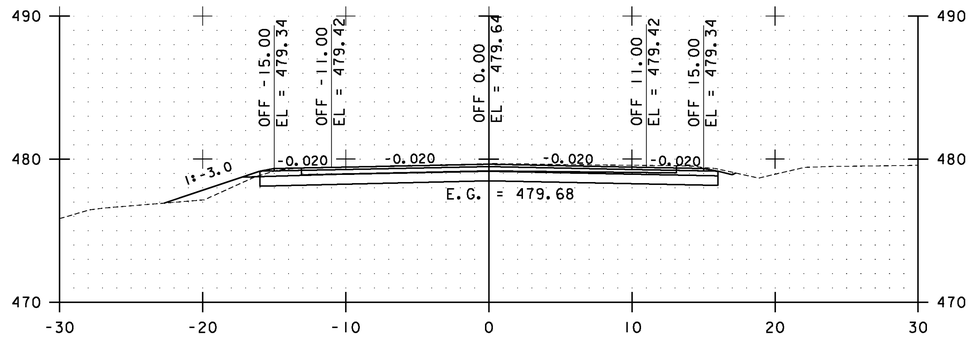
149+50.00



149+00.00



151+00.00



150+50.00

STA. 149+00.00 TO STA. 151+00.00

0 10 20
SCALE

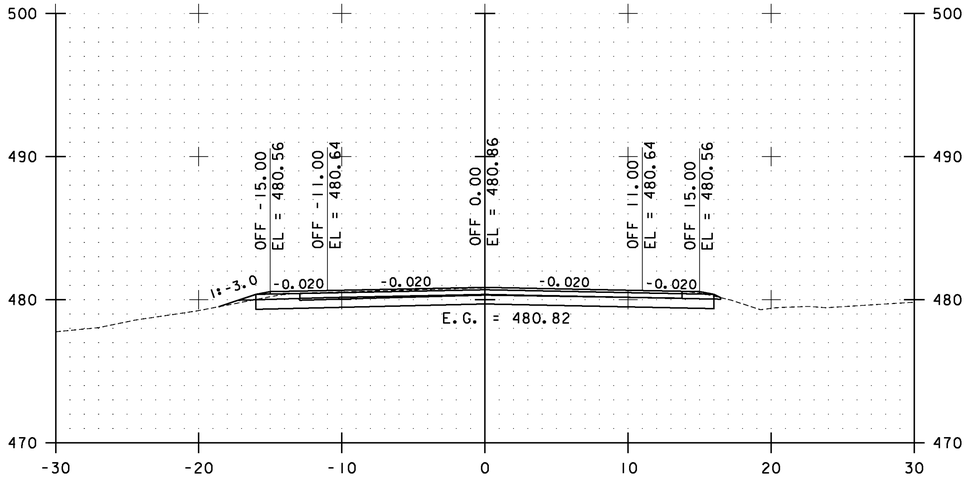
Stantec

ESSEX CROSS SECTIONS SHEET #69

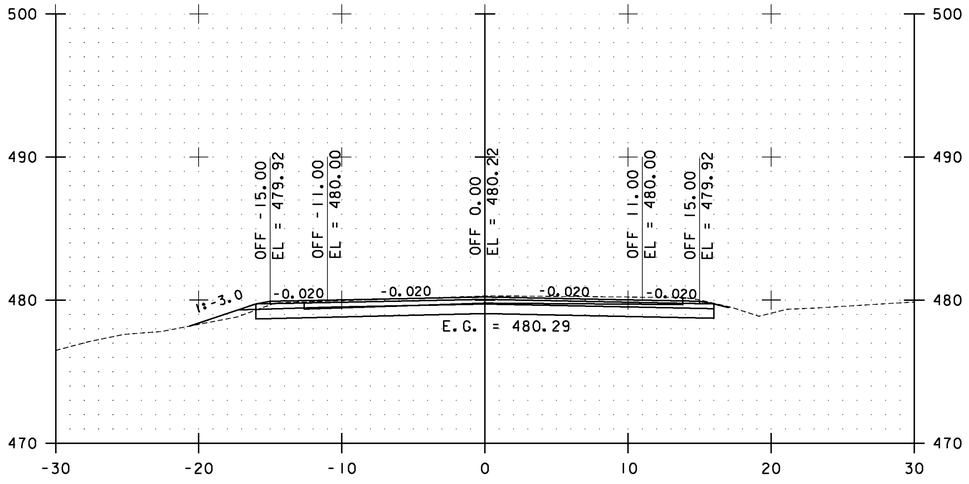
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs069.i

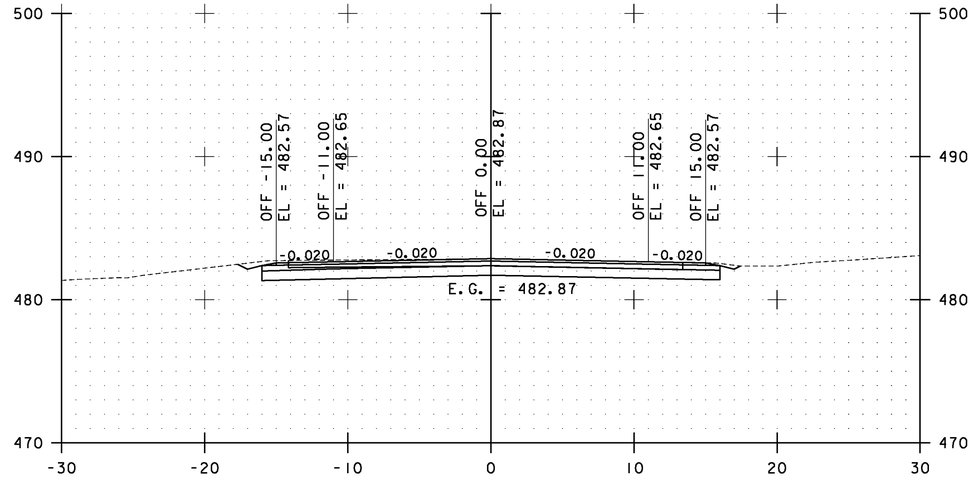
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 160 OF 239



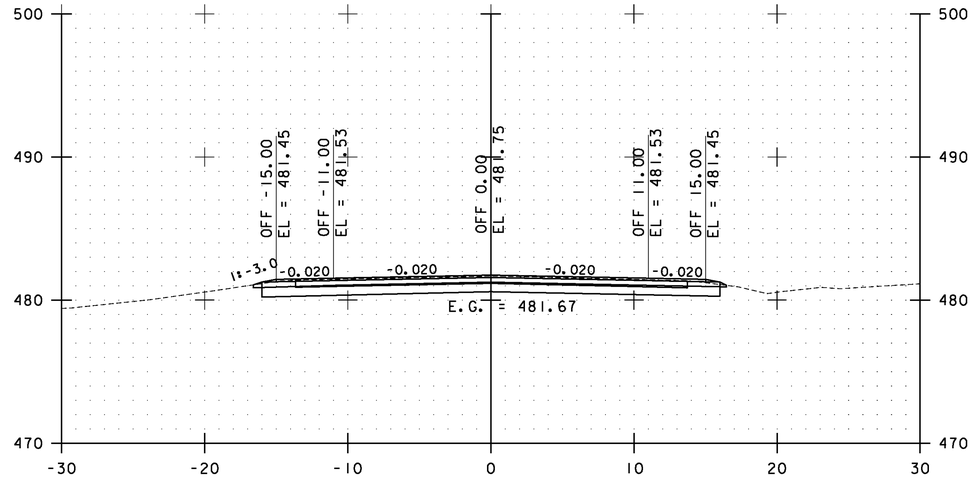
152+00.00



151+50.00



153+00.00



152+50.00

STA. 151+50.00 TO STA. 153+00.00

0 10 20
SCALE

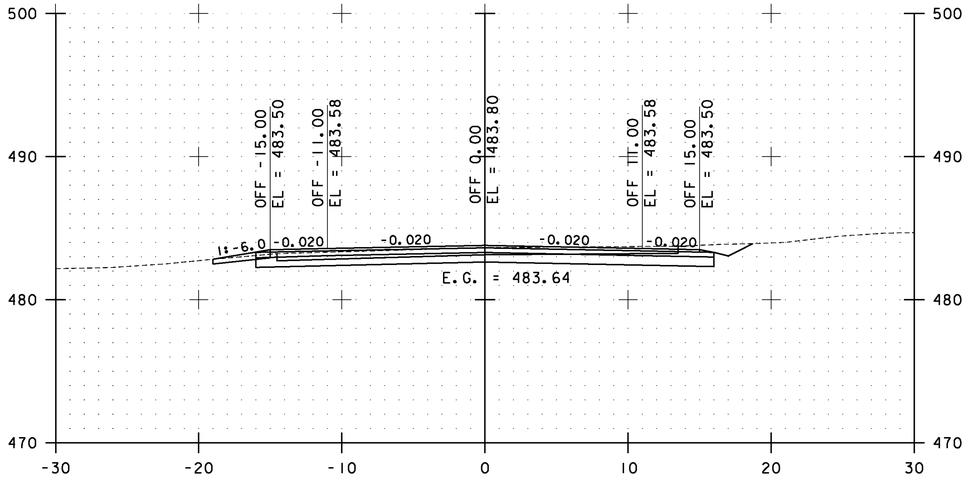
Stantec

ESSEX CROSS SECTIONS SHEET #70

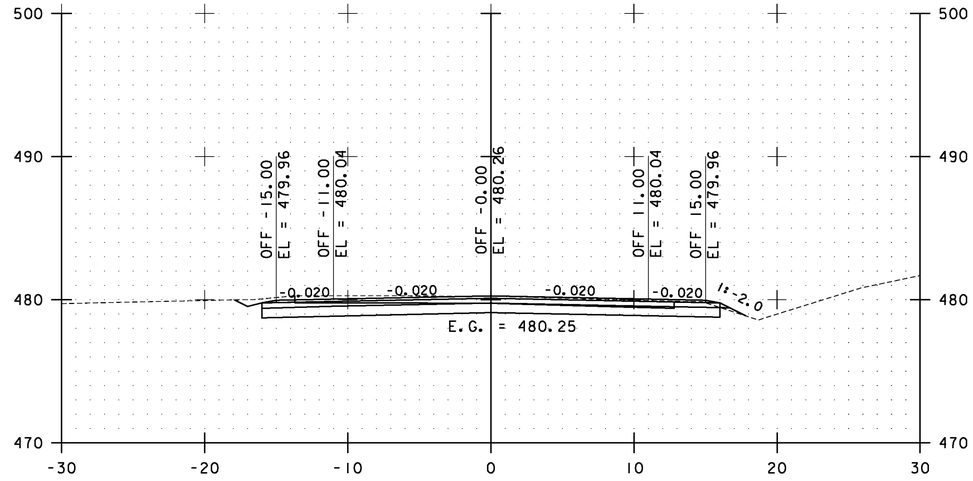
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs070.i

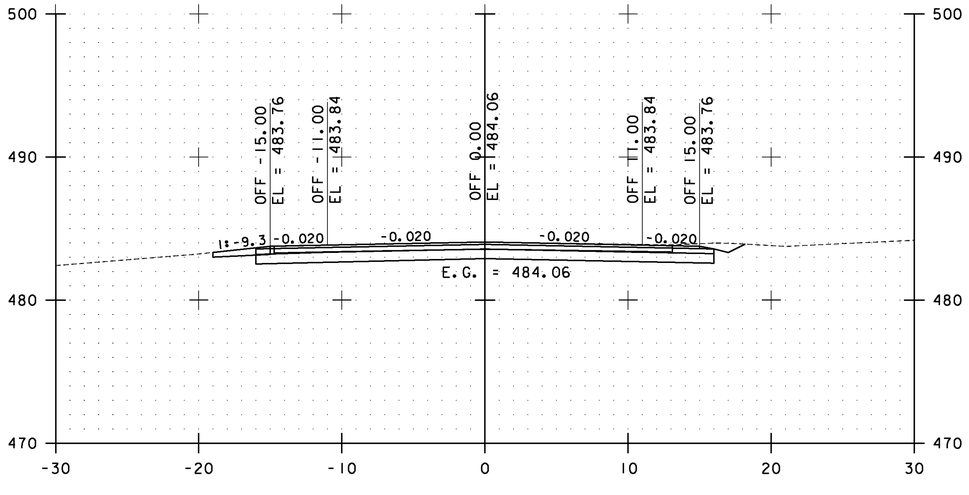
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 161 OF 239



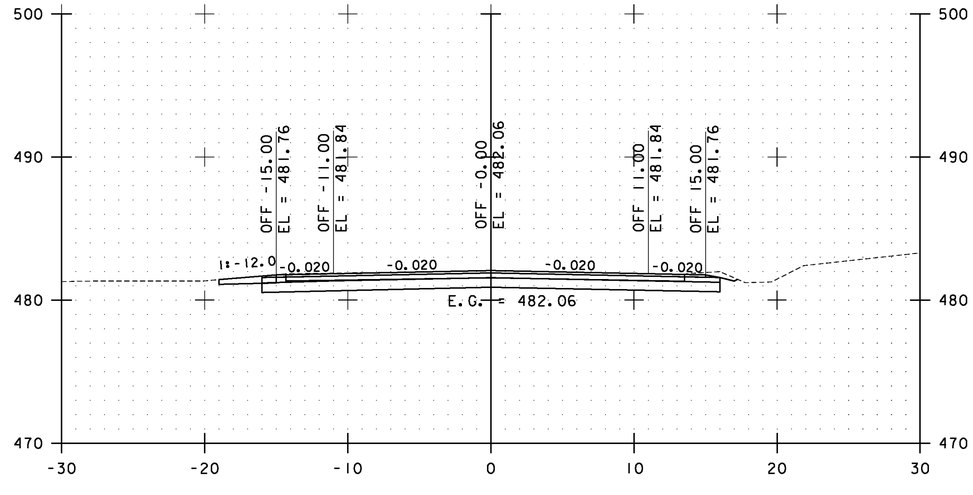
154+00.00



155+00.00



153+50.00



154+50.00

STA. 153+50.00 TO STA. 155+00.00

0 10 20
SCALE

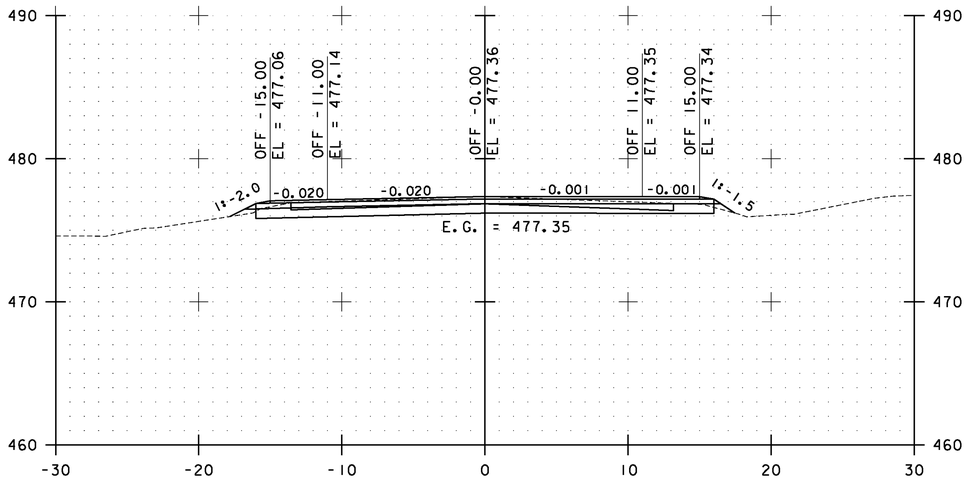
Stantec

ESSEX CROSS SECTIONS SHEET #71

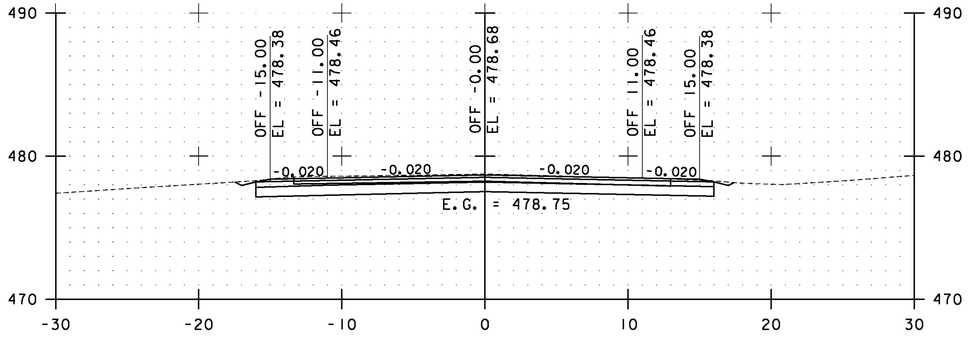
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs071.i

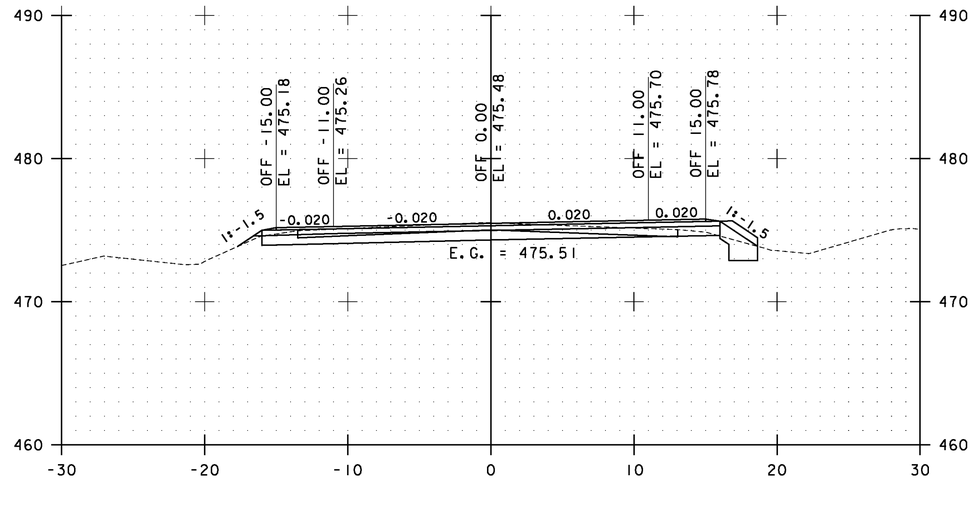
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 162 OF 239



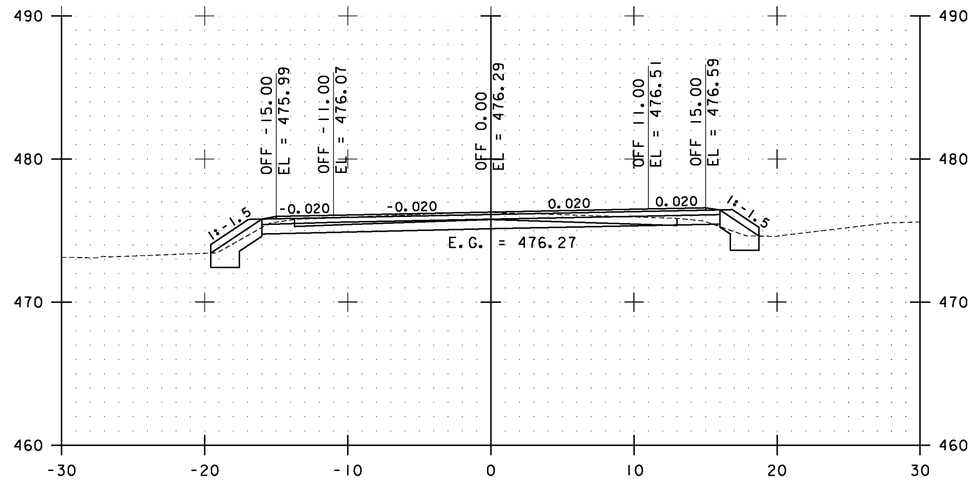
156+00.00



155+50.00



157+00.00



156+50.00

STA. 155+50.00 TO STA. 157+00.00

0 10 20
SCALE

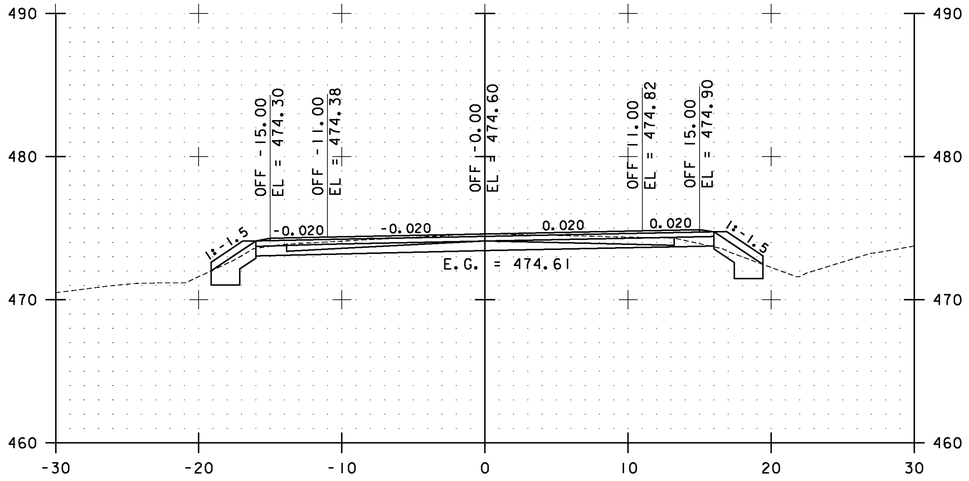
Stantec

ESSEX CROSS SECTIONS SHEET #72

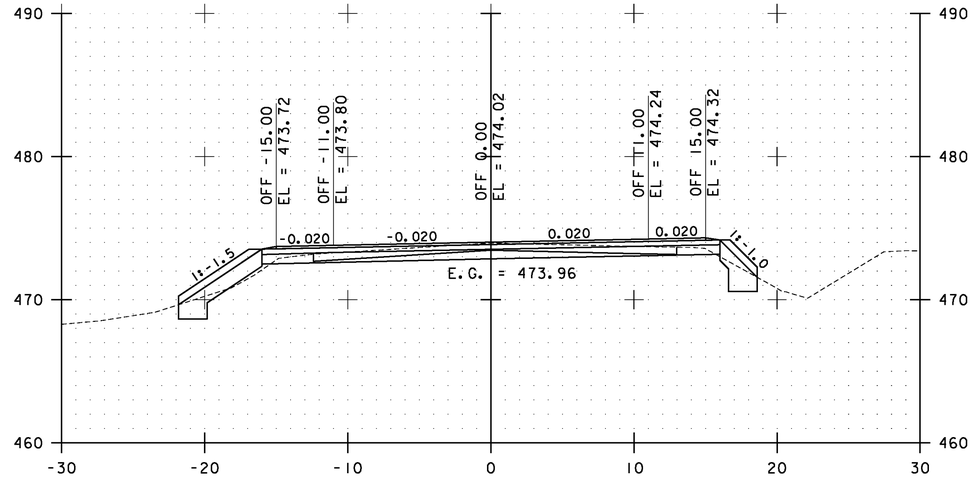
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs072.i

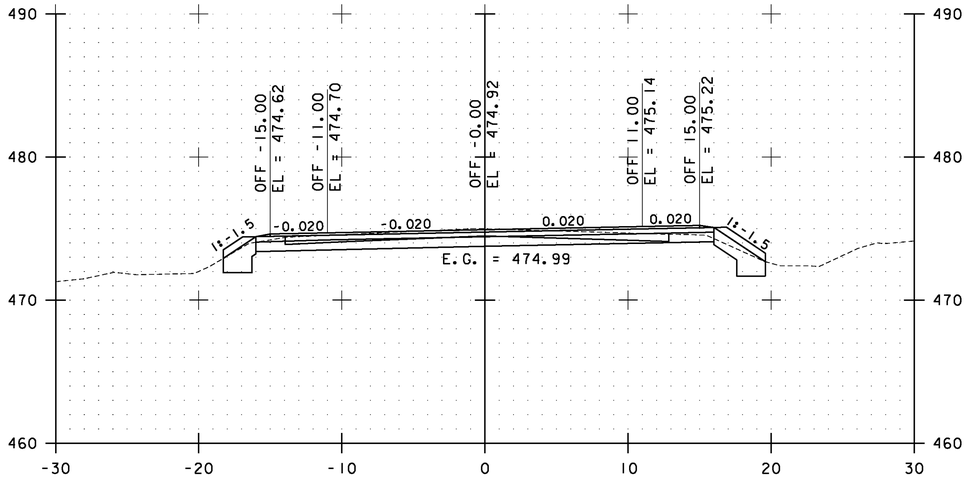
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 163 OF 239



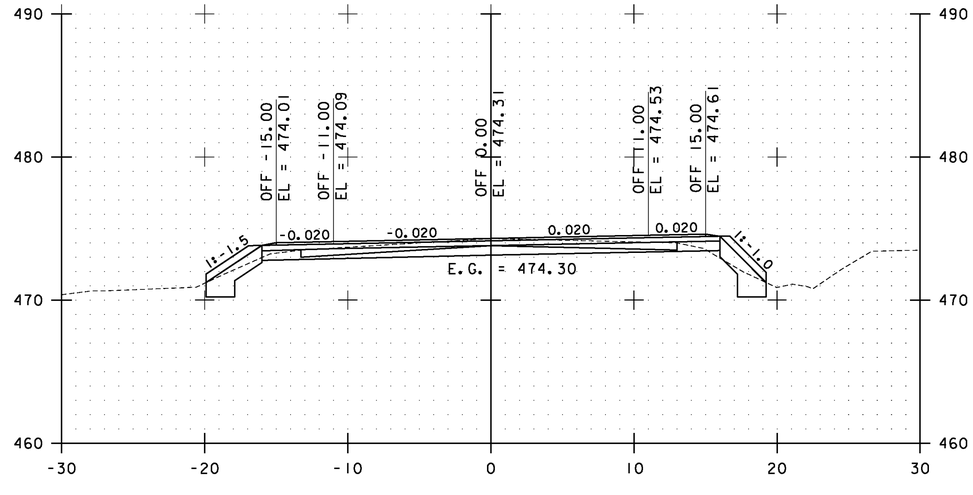
158+00.00



159+00.00



157+50.00



158+50.00

STA. 157+50.00 TO STA. 159+00.00

0 10 20
SCALE

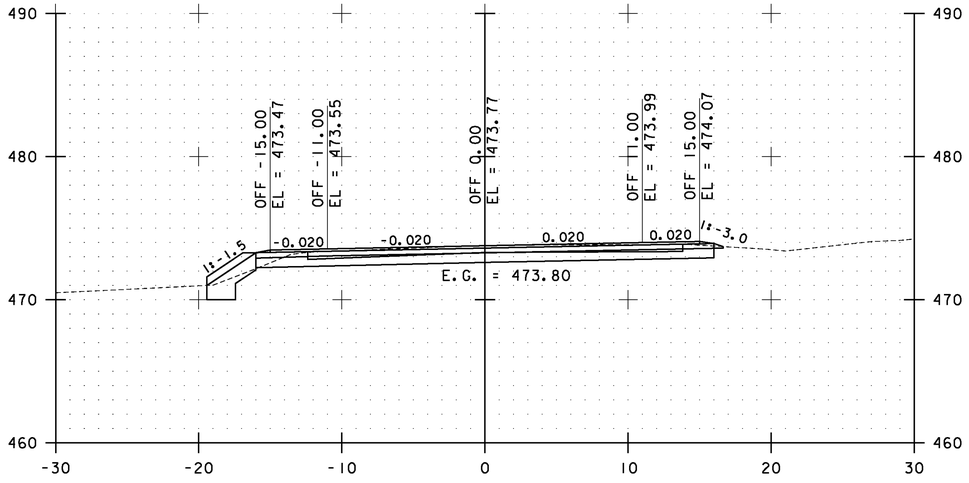
Stantec

ESSEX CROSS SECTIONS SHEET #73

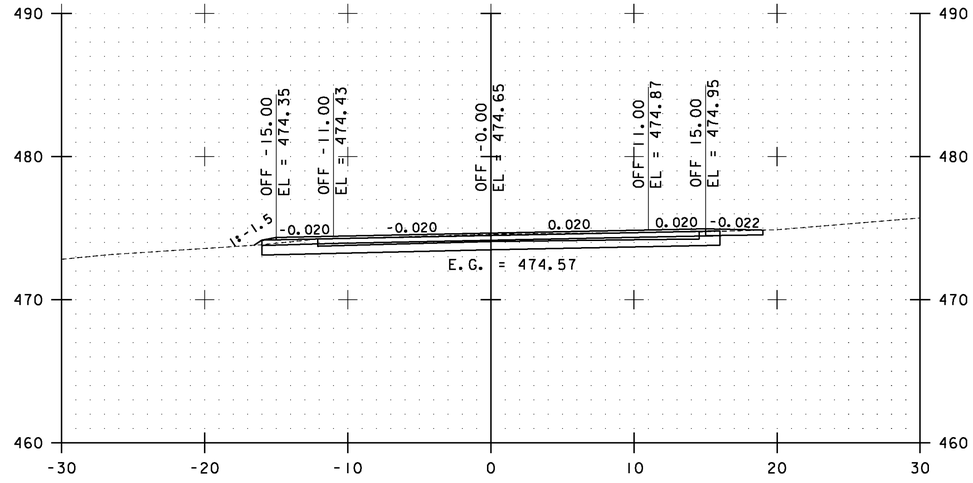
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs073.i

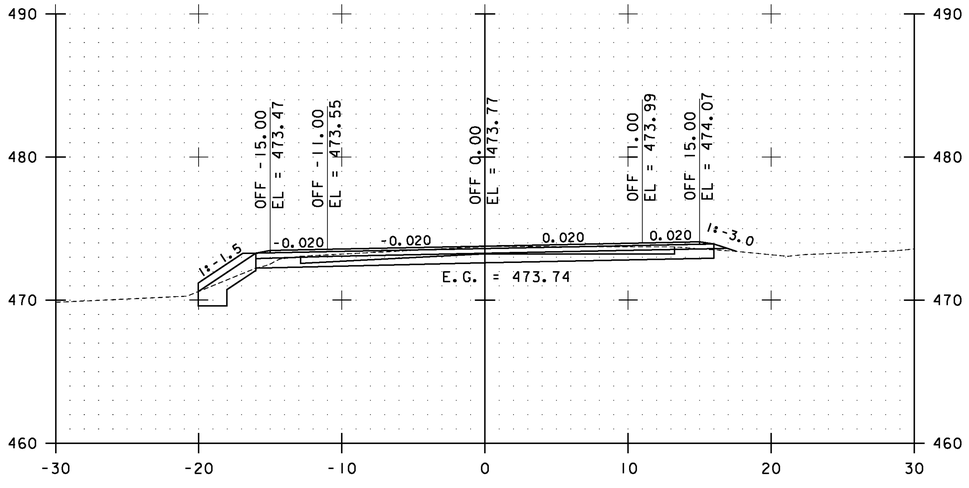
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 164 OF 239



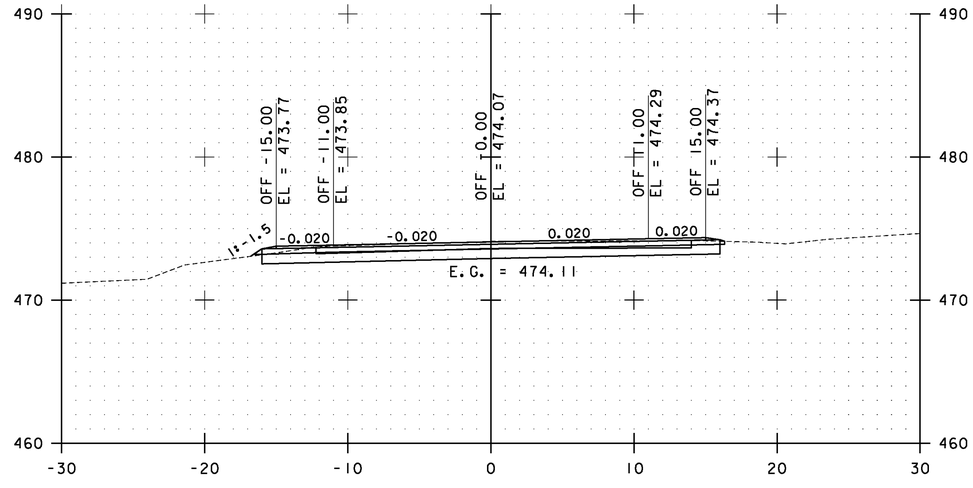
160+00.00



161+00.00



159+50.00



160+50.00

STA. 159+50.00 TO STA. 161+00.00

0 10 20
SCALE

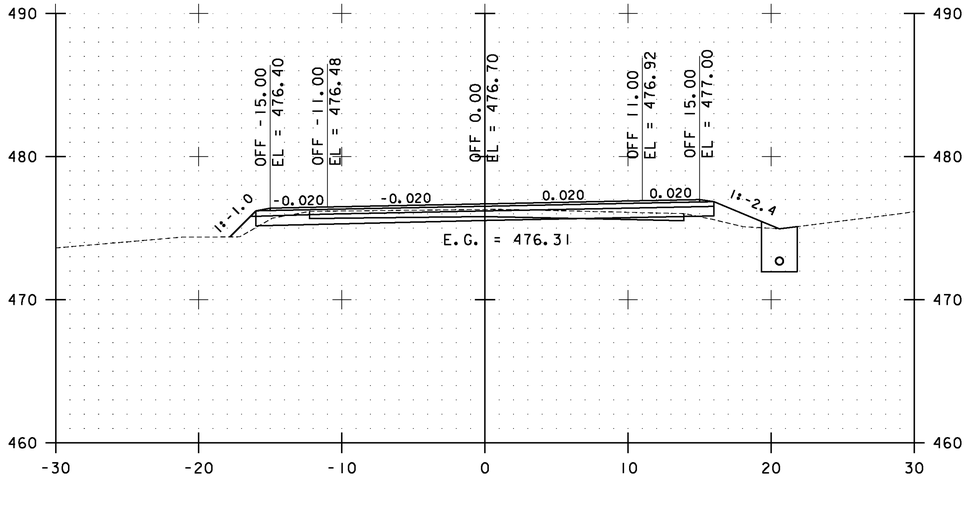
Stantec

ESSEX CROSS SECTIONS SHEET #74

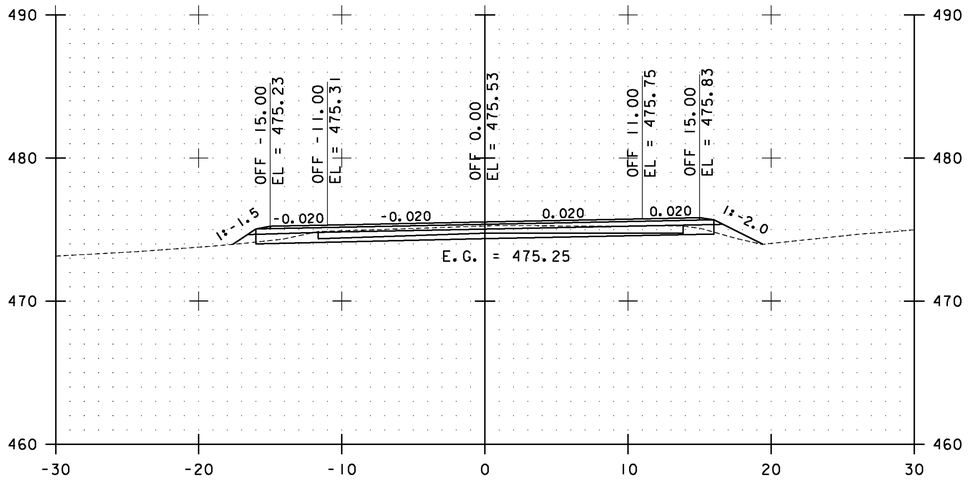
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs074.i

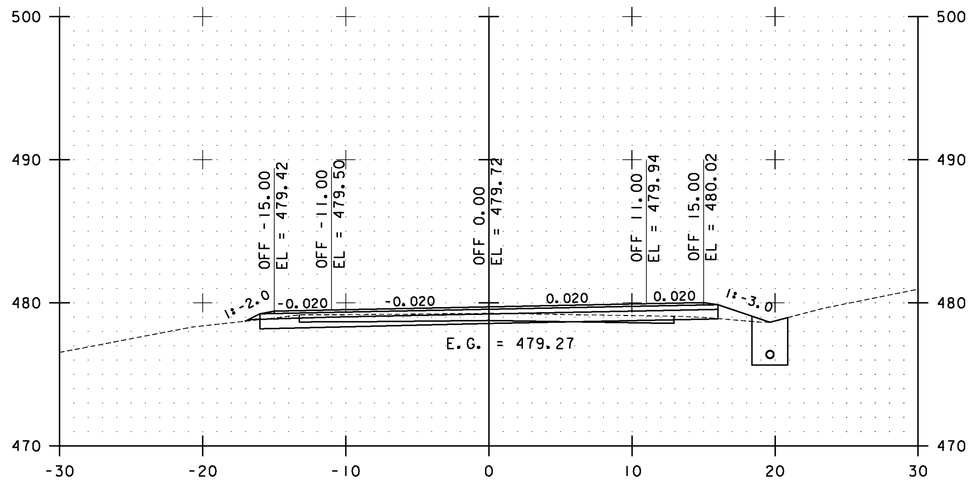
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 165 OF 239



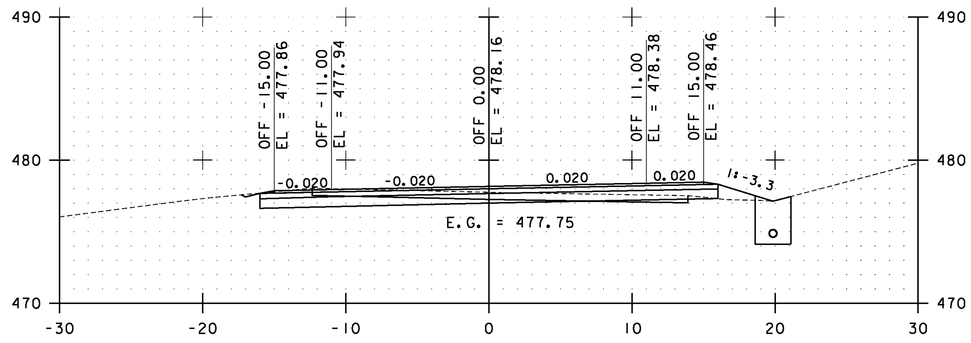
162+00.00



161+50.00



163+00.00



162+50.00

STA. 161+50.00 TO STA. 163+00.00

0 10 20
SCALE

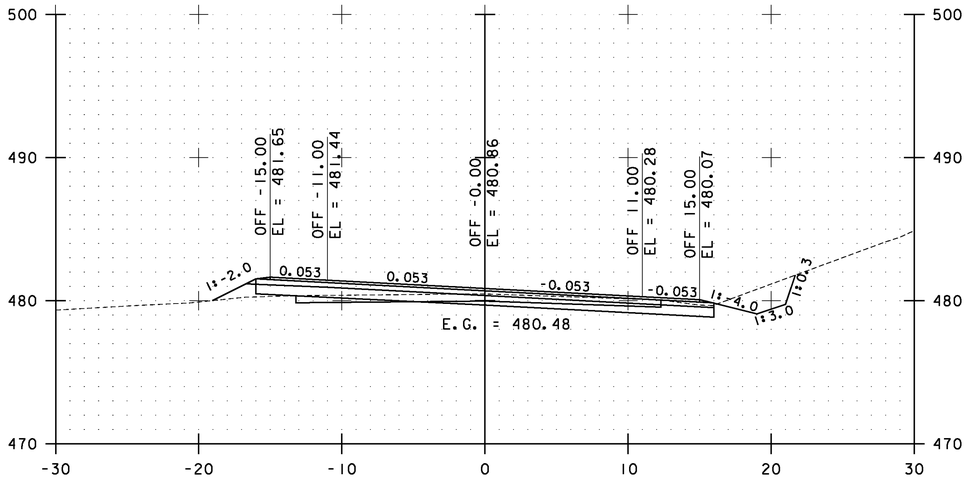
Stantec

ESSEX CROSS SECTIONS SHEET #75

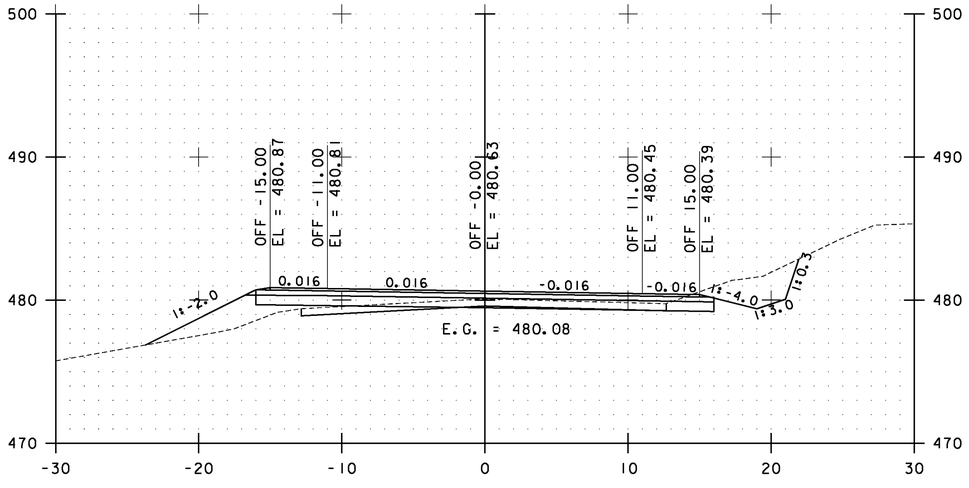
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs075.i

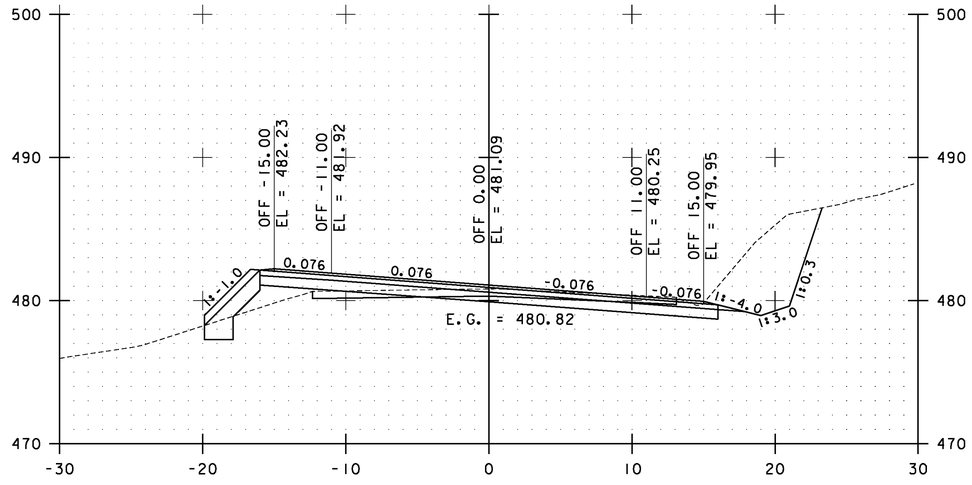
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 166 OF 239



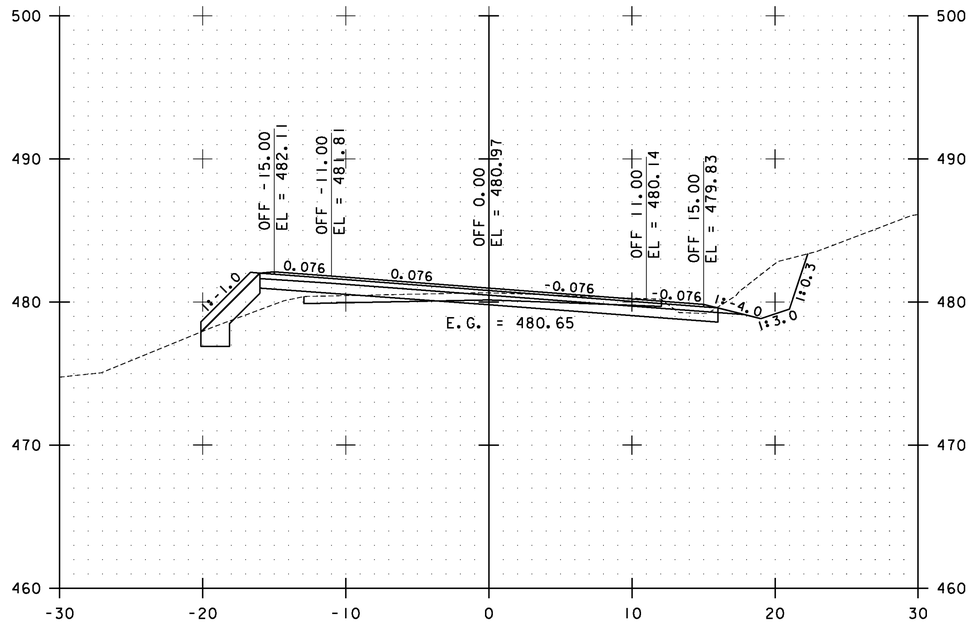
164+00.00



163+50.00



165+00.00



164+50.00

STA. 163+50.00 TO STA. 165+00.00

0 10 20
SCALE

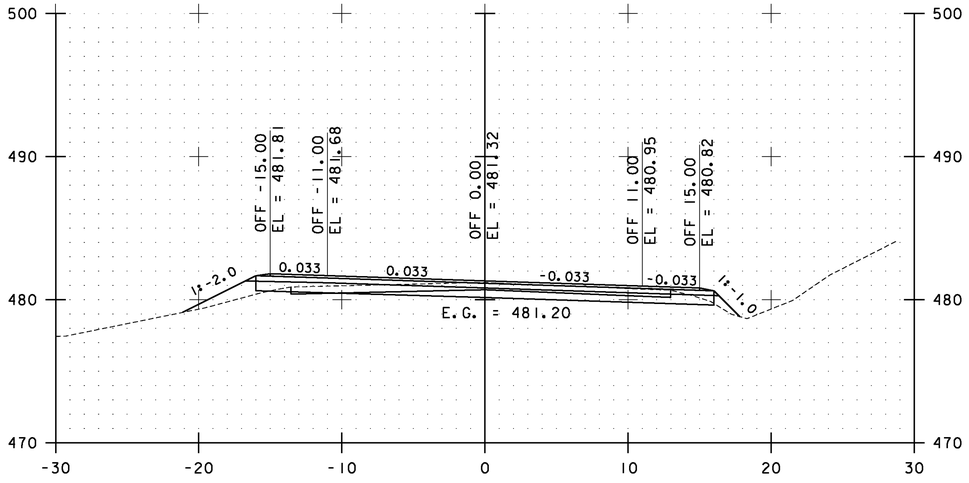
Stantec

ESSEX CROSS SECTIONS SHEET #76

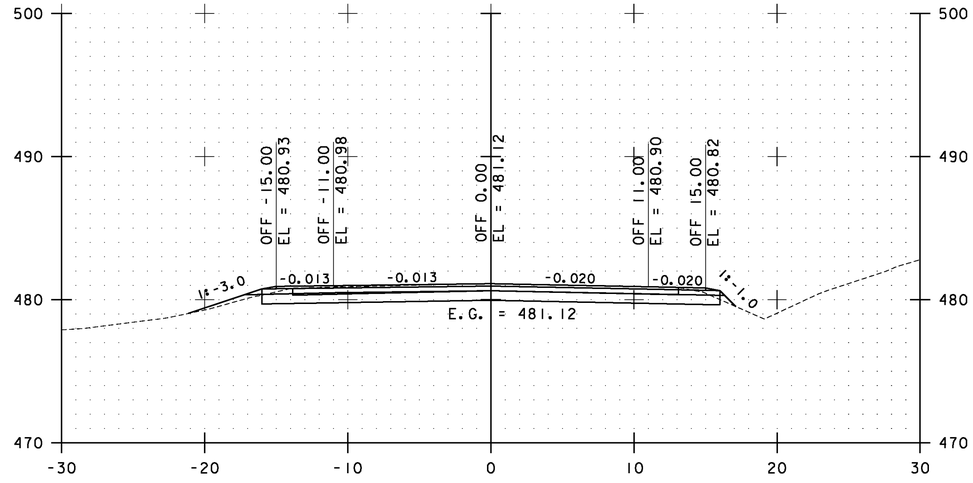
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs076.i

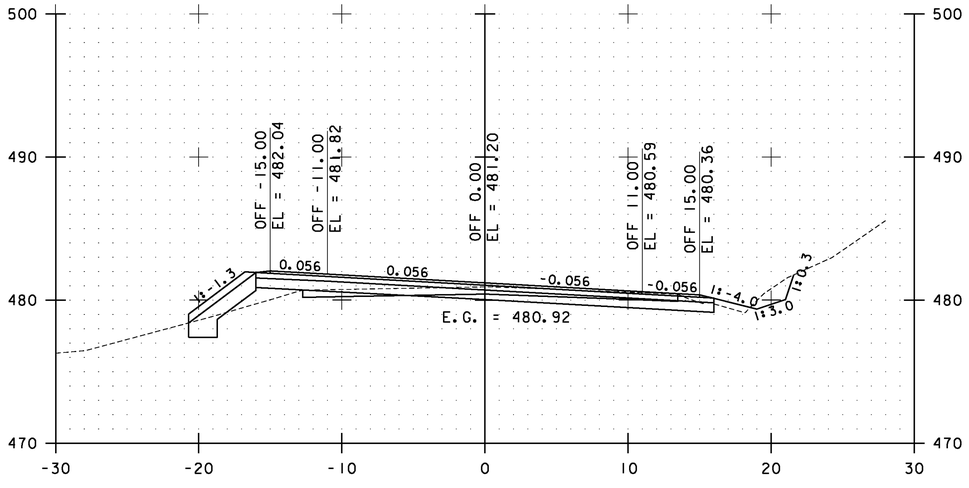
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 167 OF 239



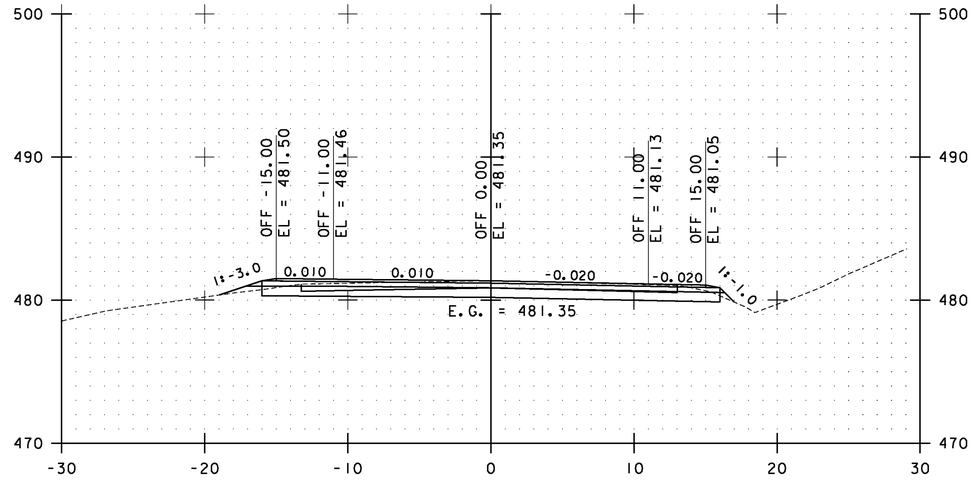
166+00.00



167+00.00



165+50.00



166+50.00

STA. 165+50.00 TO STA. 167+00.00

0 10 20
SCALE

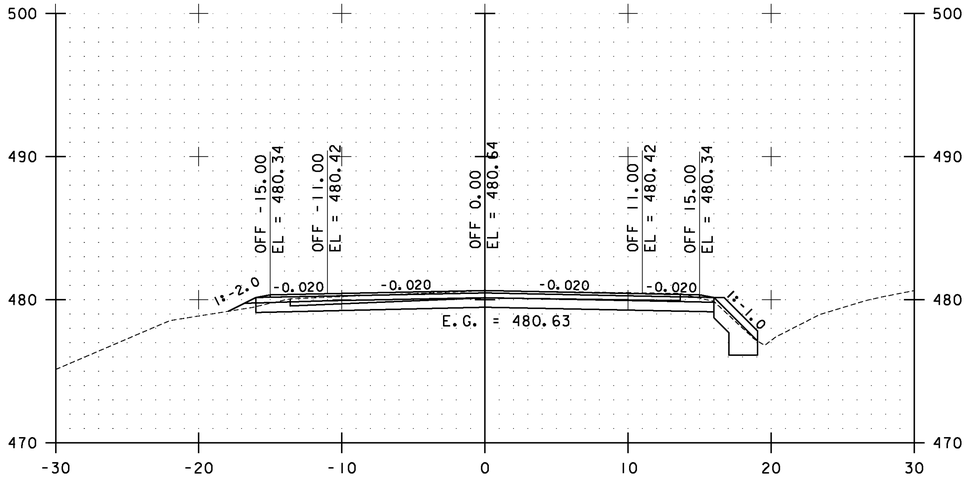
Stantec

ESSEX CROSS SECTIONS SHEET #77

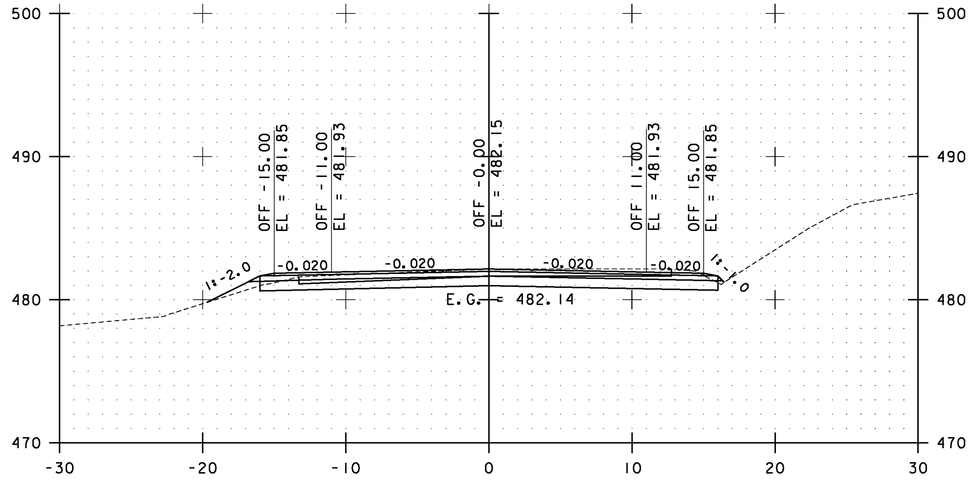
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs077.i

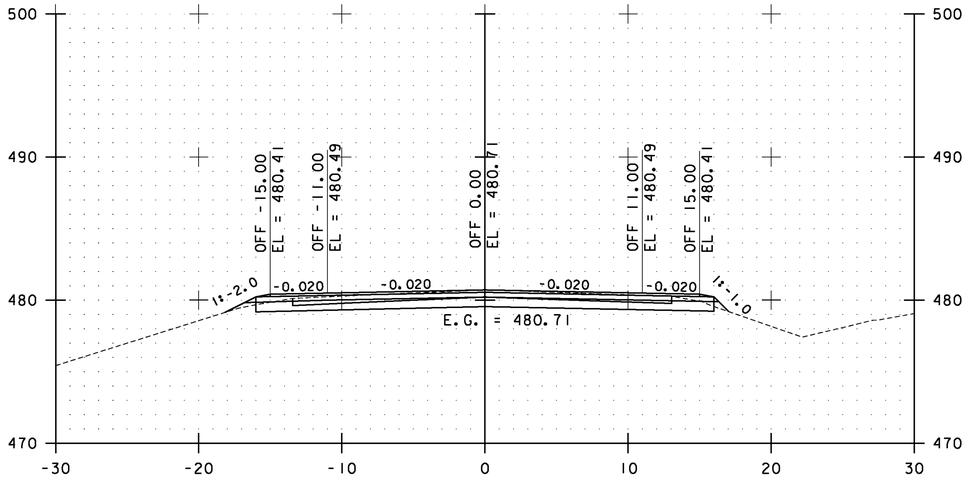
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 168 OF 239



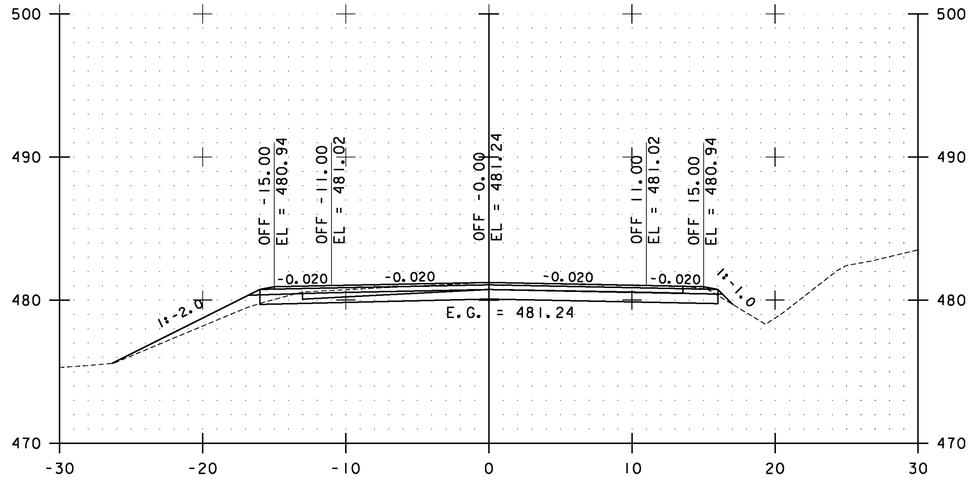
168+00.00



169+00.00



167+50.00



168+50.00

STA. 167+50.00 TO STA. 169+00.00

0 10 20
SCALE

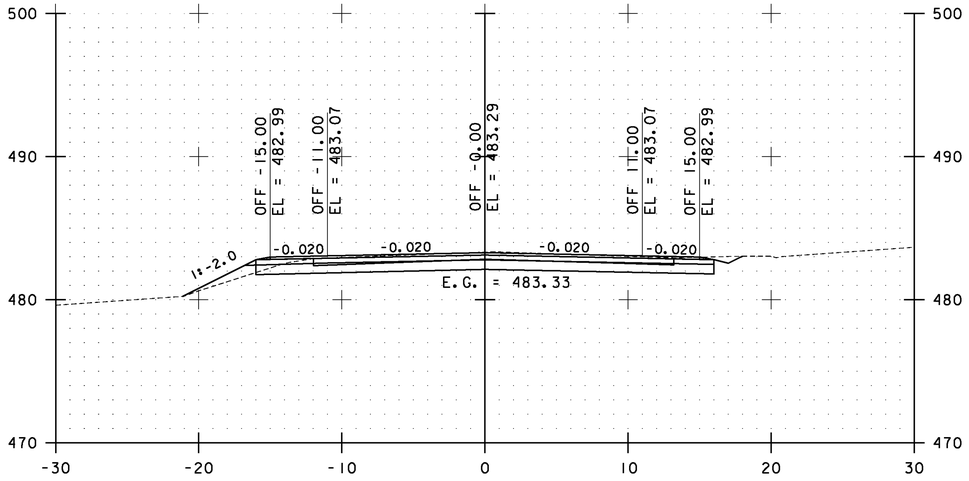
Stantec

ESSEX CROSS SECTIONS SHEET #78

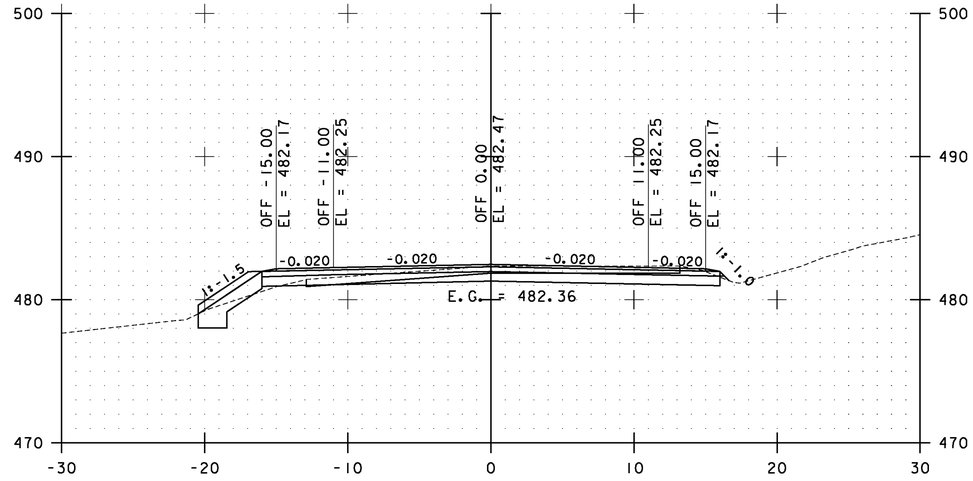
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs078.i

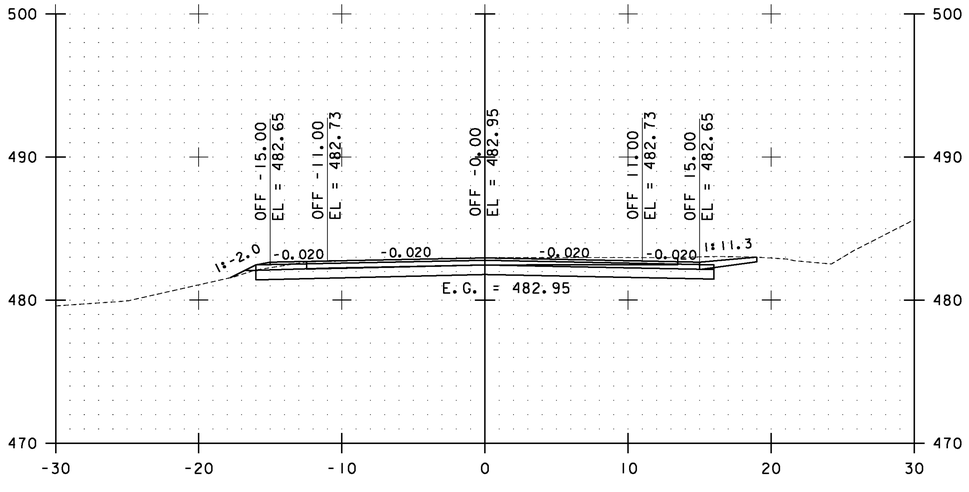
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 169 OF 239



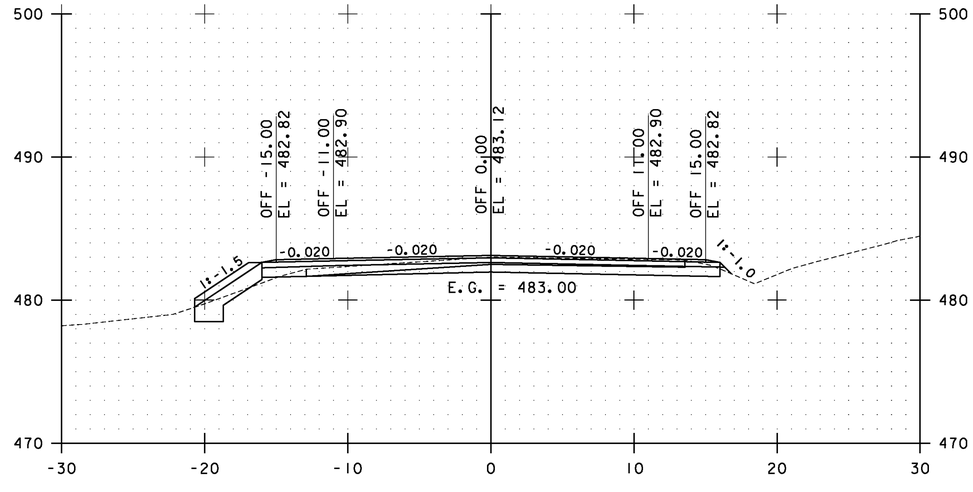
170+00.00



171+00.00



169+50.00



170+50.00

STA. 169+50.00 TO STA. 171+00.00

0 10 20
SCALE

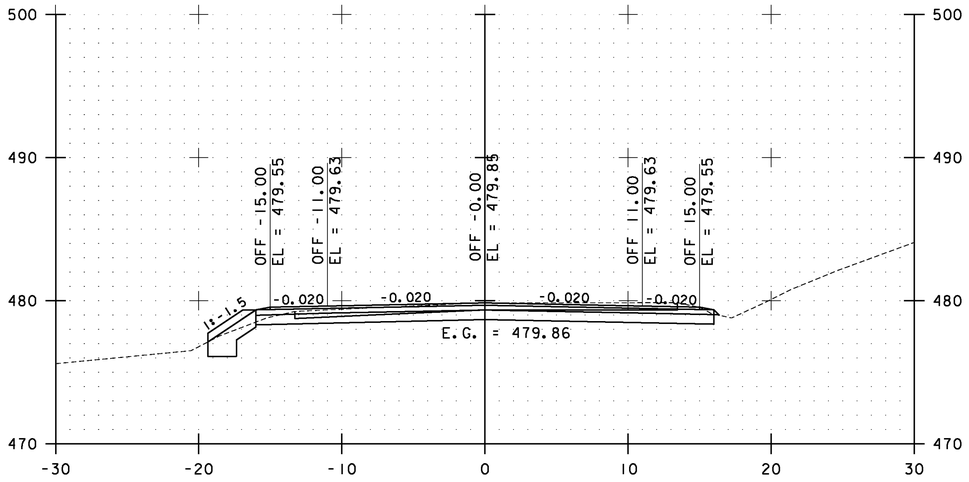
Stantec

ESSEX CROSS SECTIONS SHEET #79

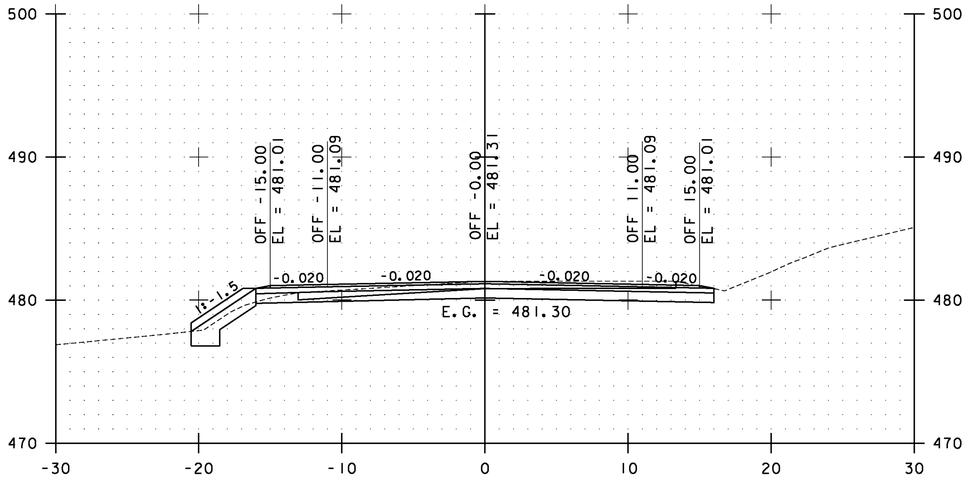
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs079.i

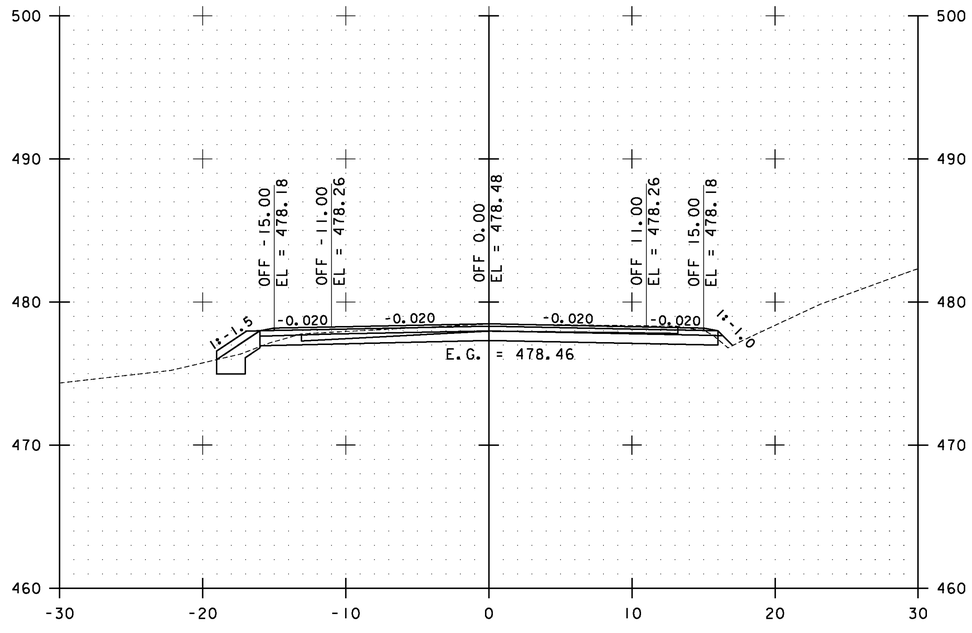
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 170 OF 239



172+00.00



171+50.00



172+50.00

STA. 171+50.00 TO STA. 172+50.00

0 10 20
SCALE

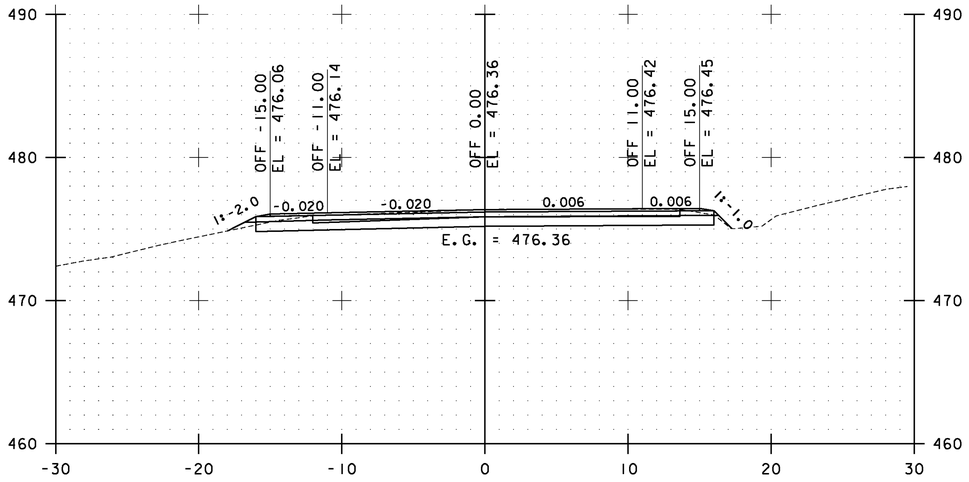
Stantec

ESSEX CROSS SECTIONS SHEET #80

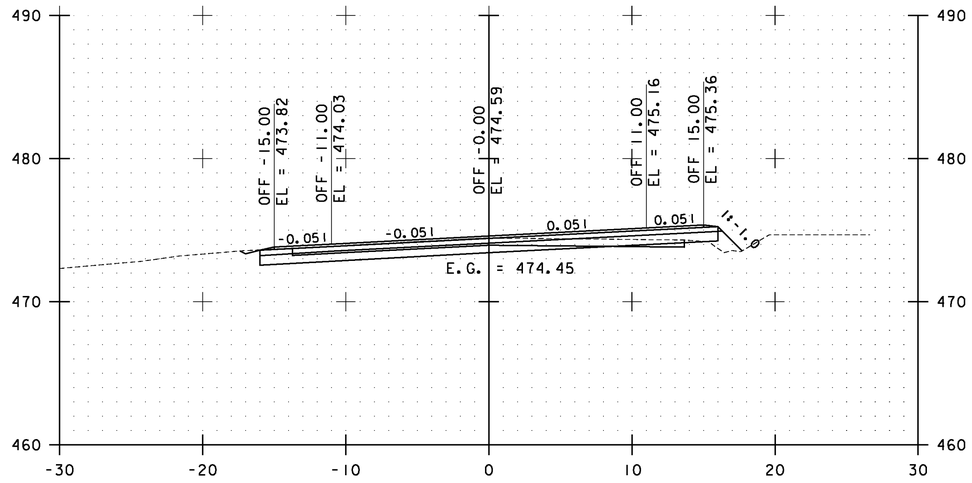
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs080.i

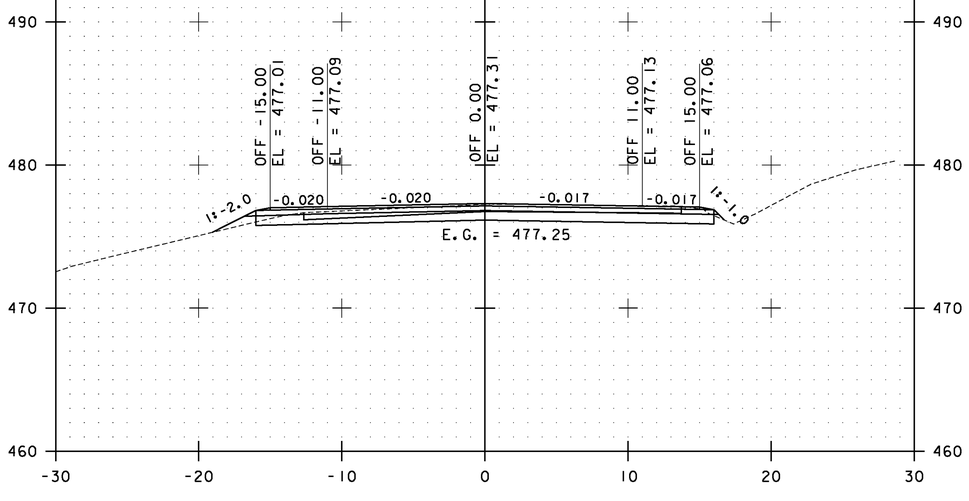
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 171 OF 239



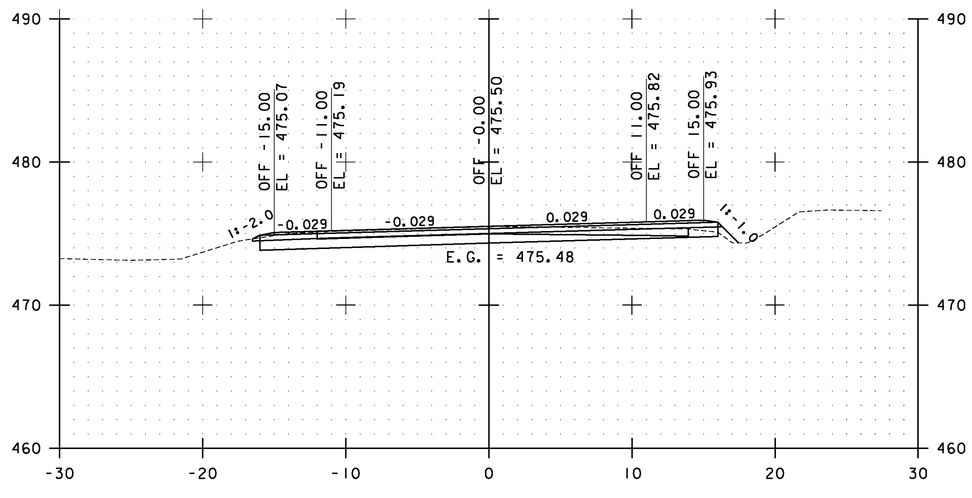
173+50.00



174+50.00



173+00.00



174+00.00

STA. 173+00.00 TO STA. 174+50.00

0 10 20
SCALE

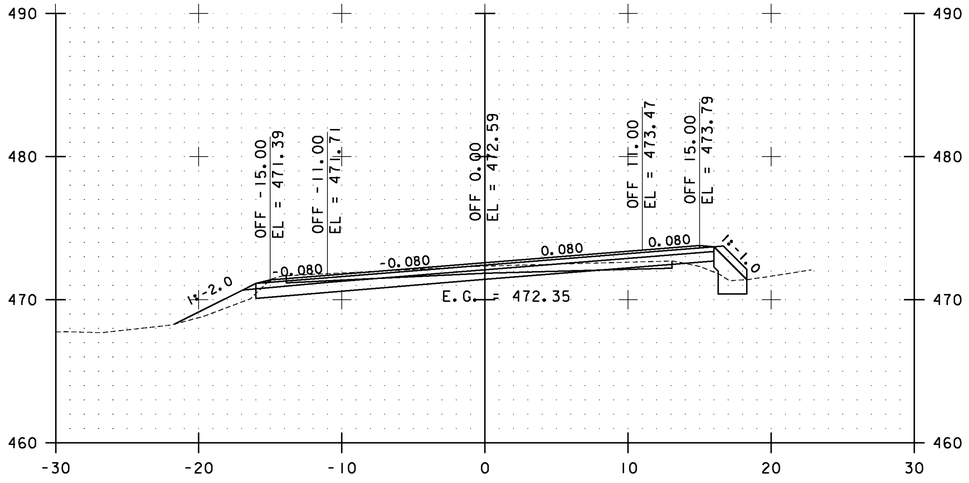
Stantec

ESSEX CROSS SECTIONS SHEET #81

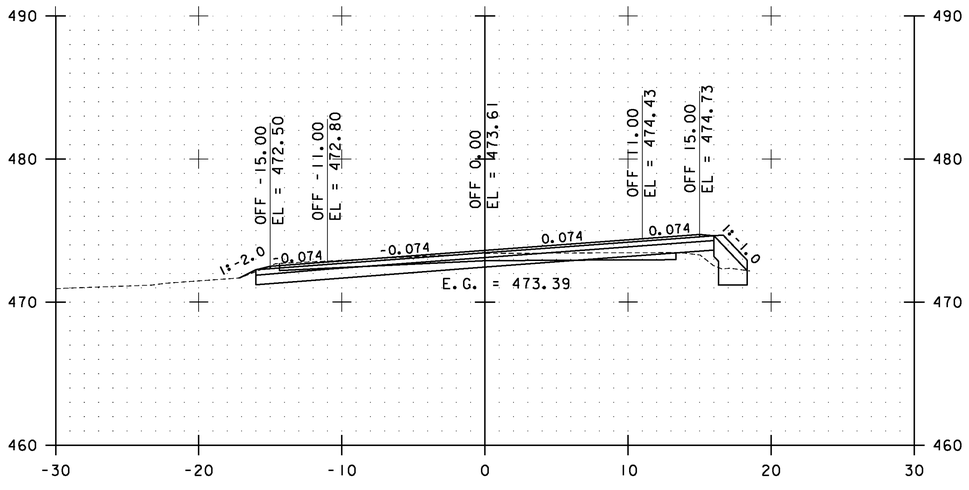
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs081.i

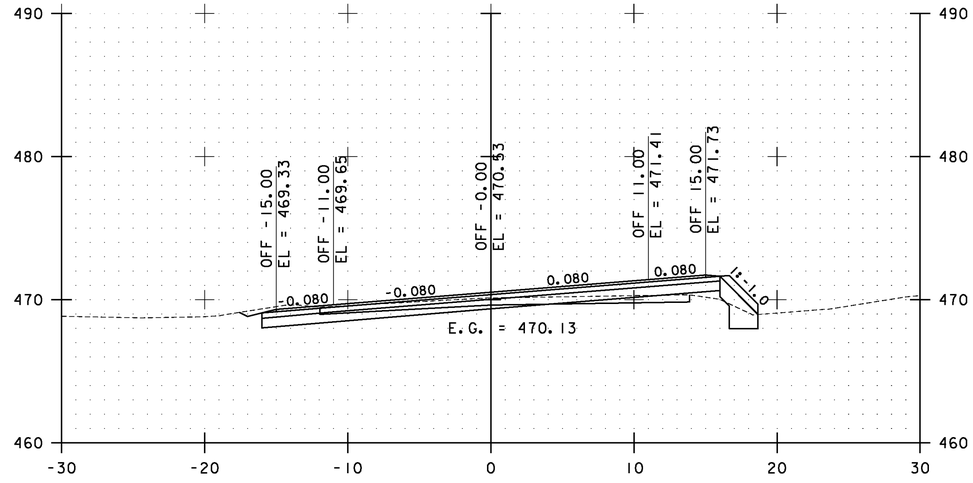
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 172 OF 239



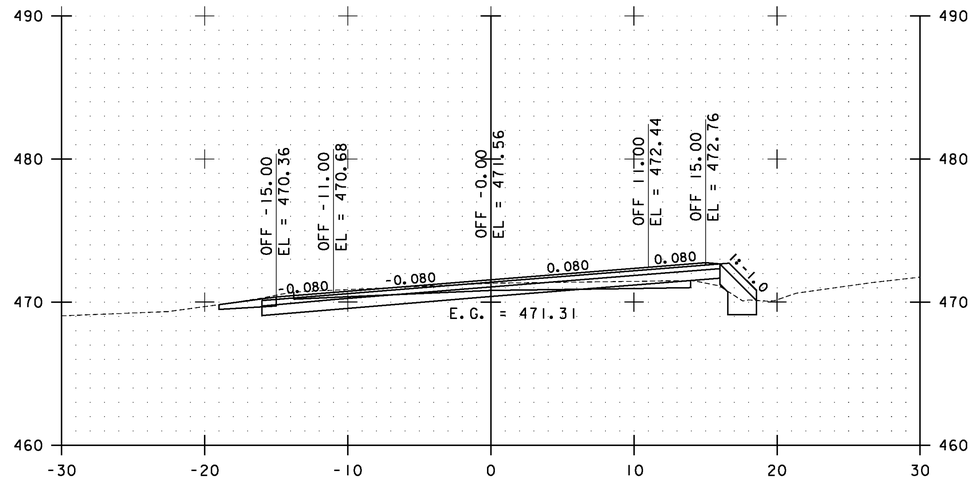
175+50.00



175+00.00



176+50.00



176+00.00

STA. 175+00.00 TO STA. 176+50.00

0 10 20
SCALE

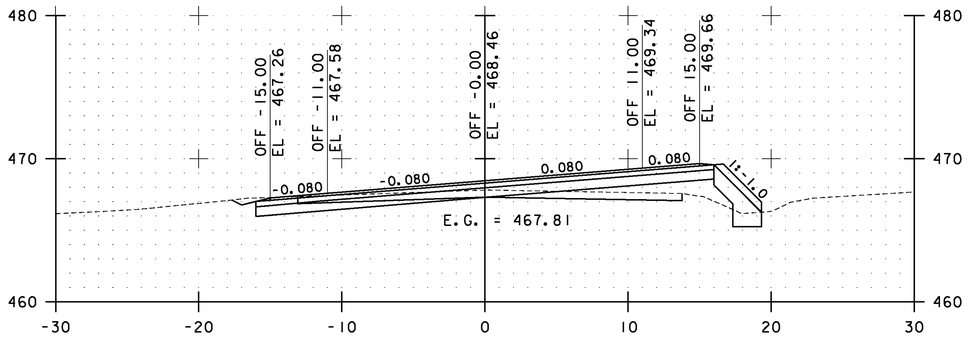
Stantec

ESSEX CROSS SECTIONS SHEET #82

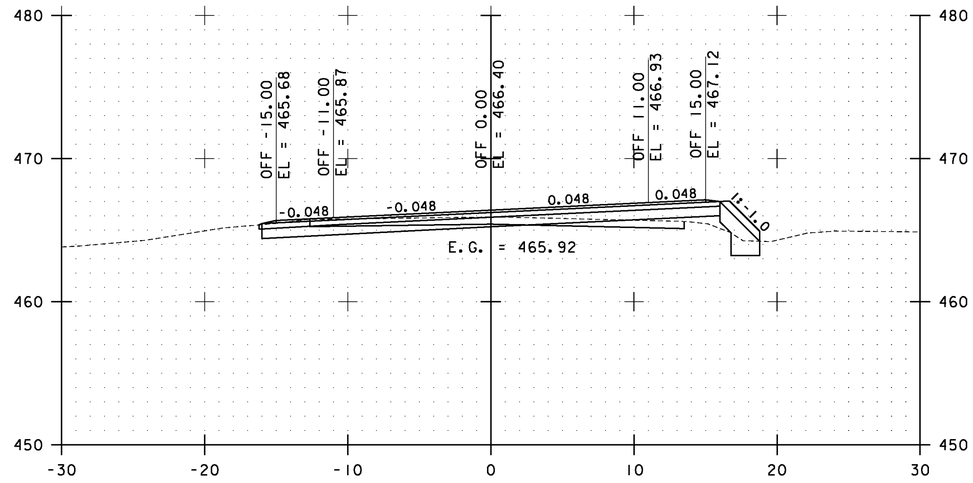
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs082.i

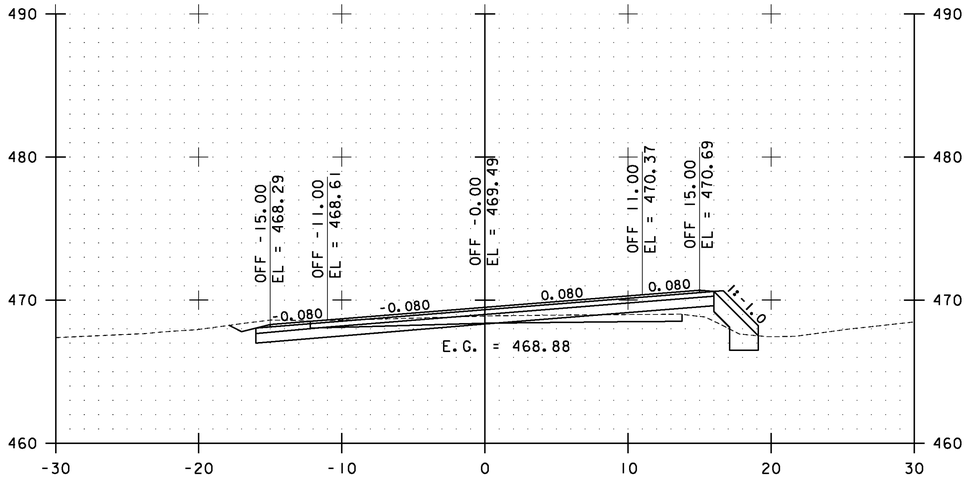
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 173 OF 239



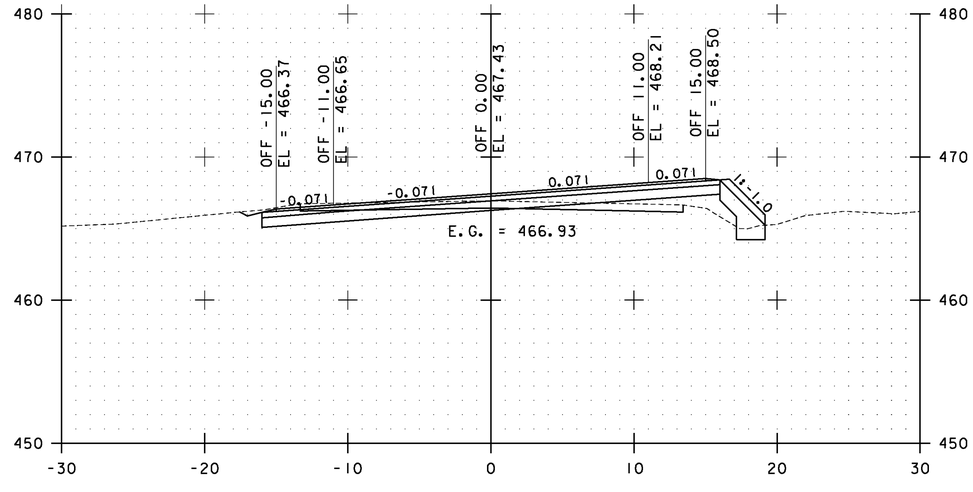
177+50.00



178+50.00



177+00.00



178+00.00

STA. 177+00.00 TO STA. 178+50.00

0 10 20
SCALE

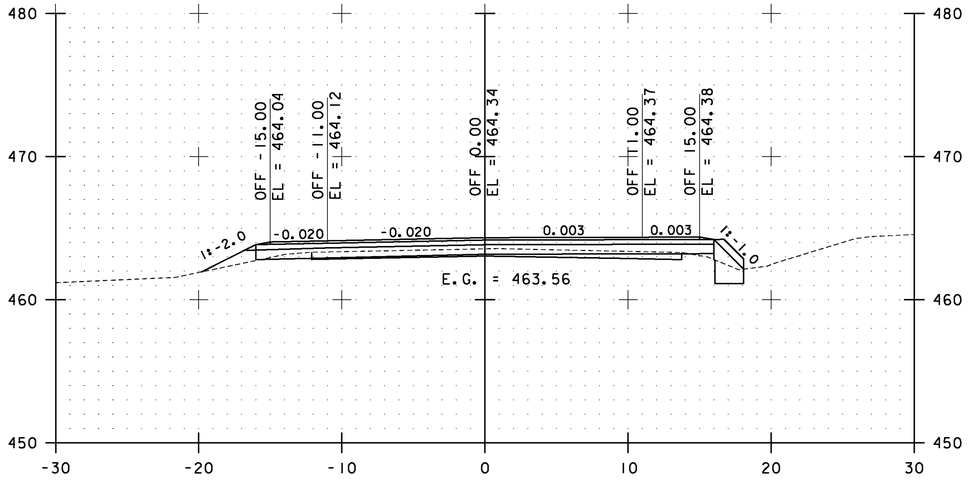
Stantec

ESSEX CROSS SECTIONS SHEET #83

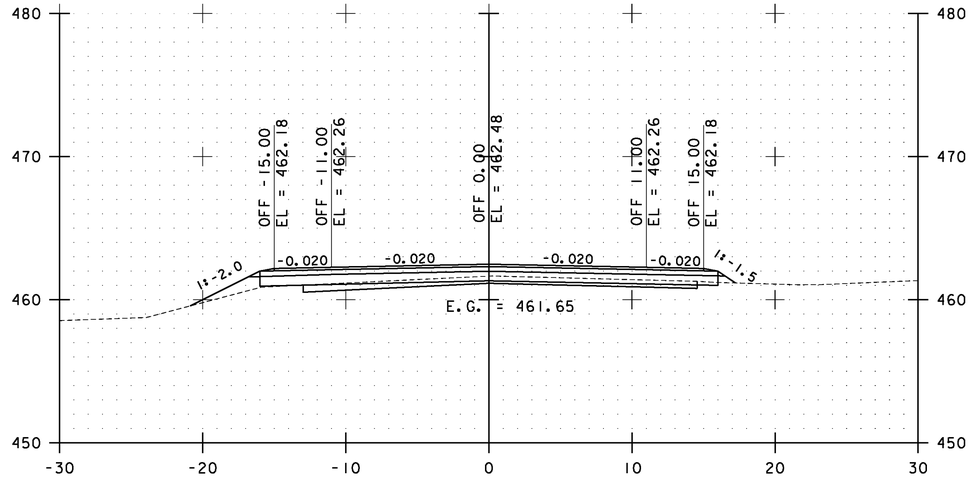
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs083.i

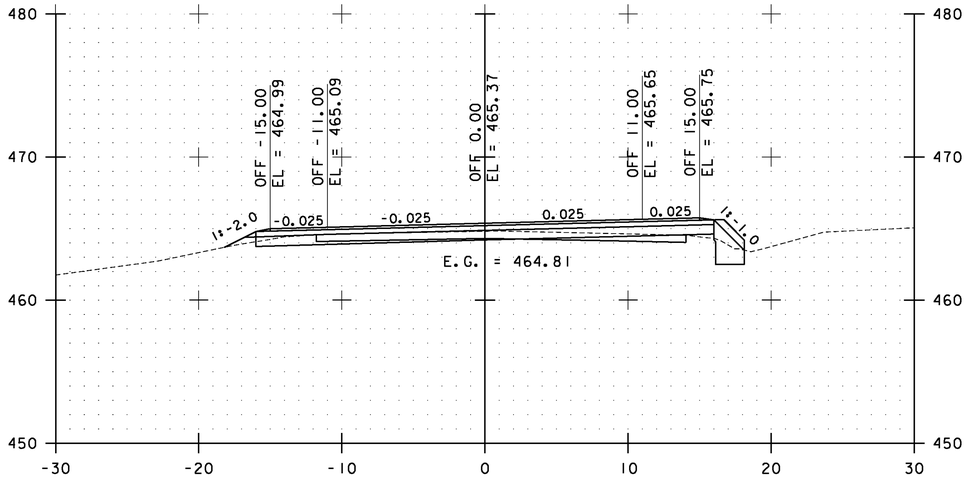
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 174 OF 239



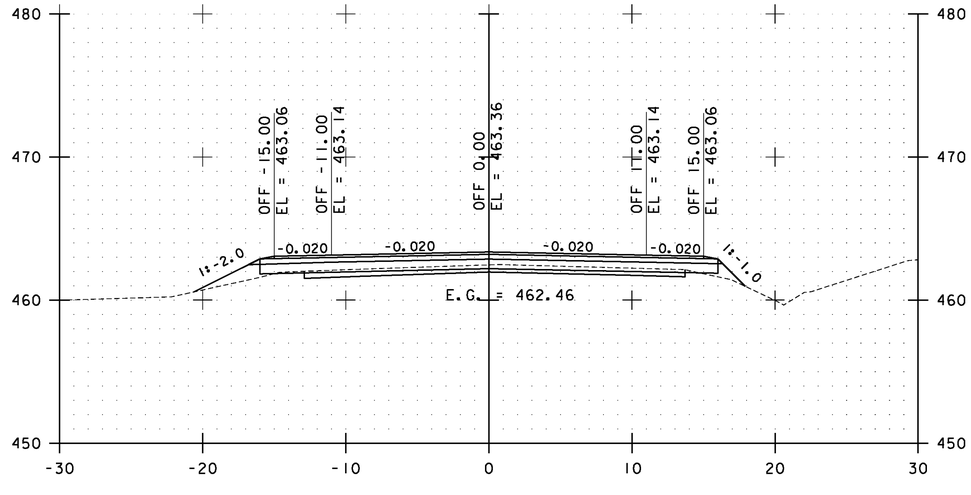
179+50.00



180+50.00



179+00.00



180+00.00

STA. 179+00.00 TO STA. 180+50.00

0 10 20
SCALE

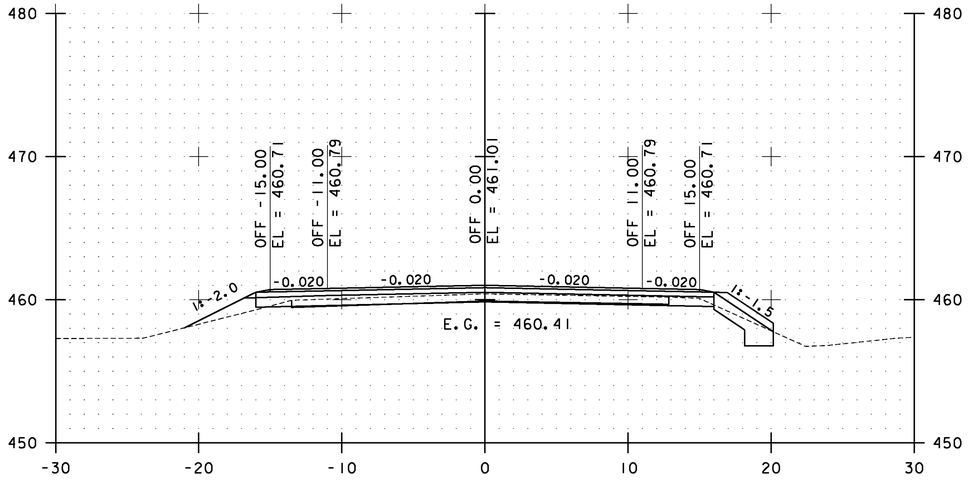
Stantec

ESSEX CROSS SECTIONS SHEET #84

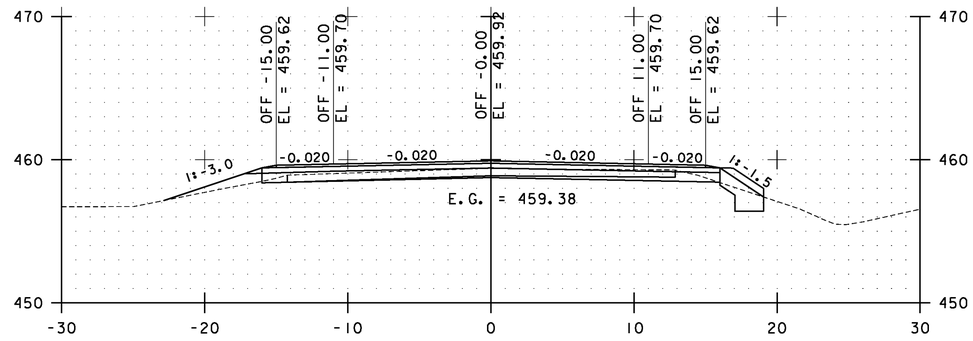
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs084.i

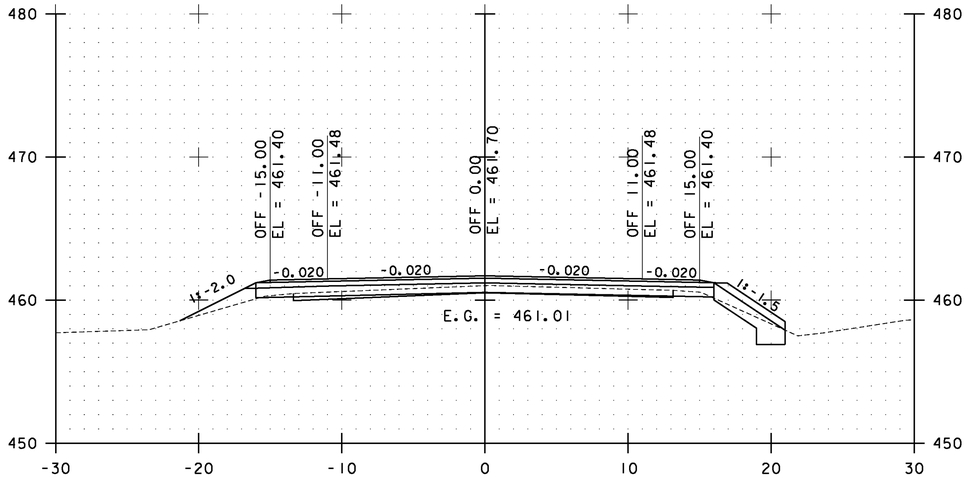
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 175 OF 239



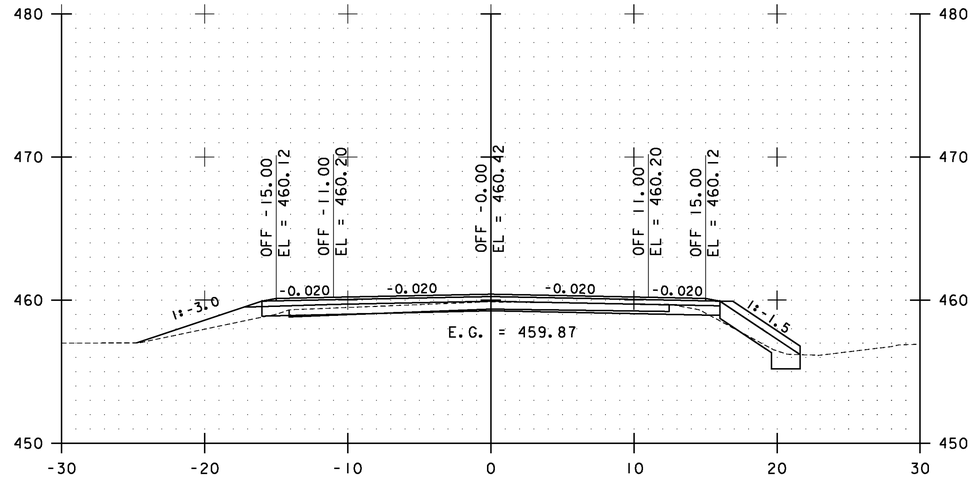
181+50.00



182+50.00



181+00.00



182+00.00

STA. 181+00.00 TO STA. 182+50.00

0 10 20
SCALE

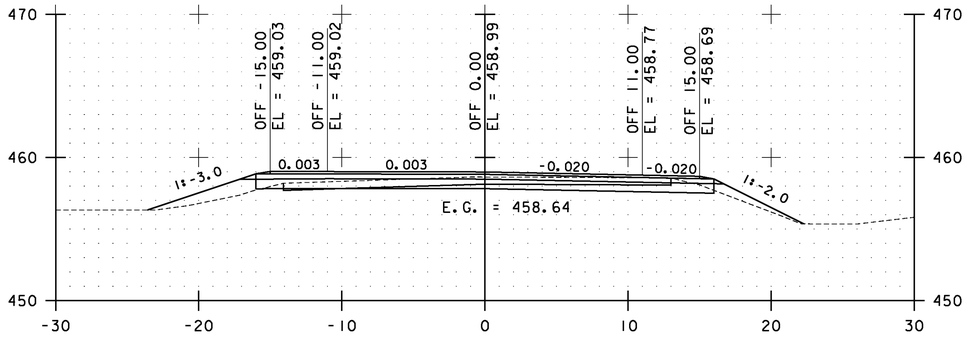
Stantec

ESSEX CROSS SECTIONS SHEET #85

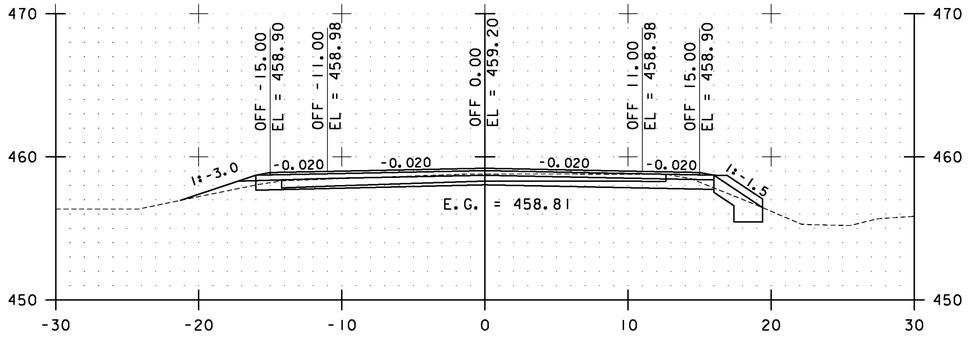
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs085.i

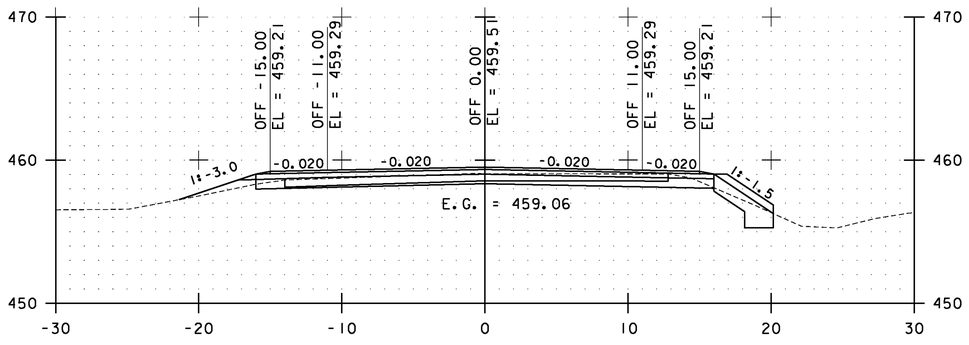
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 176 OF 239



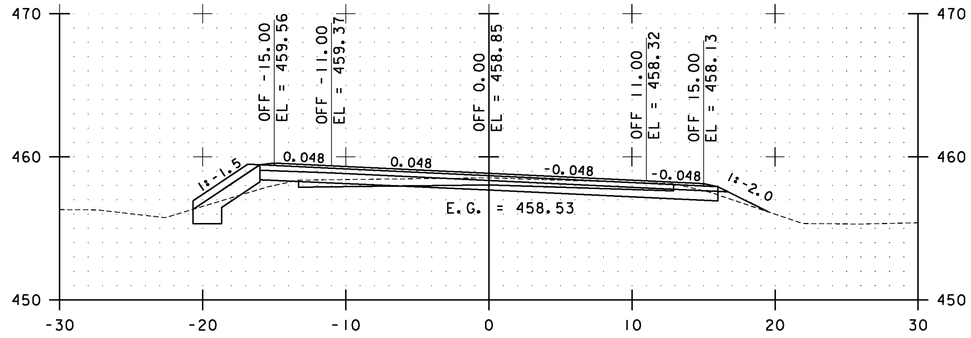
184+00.00



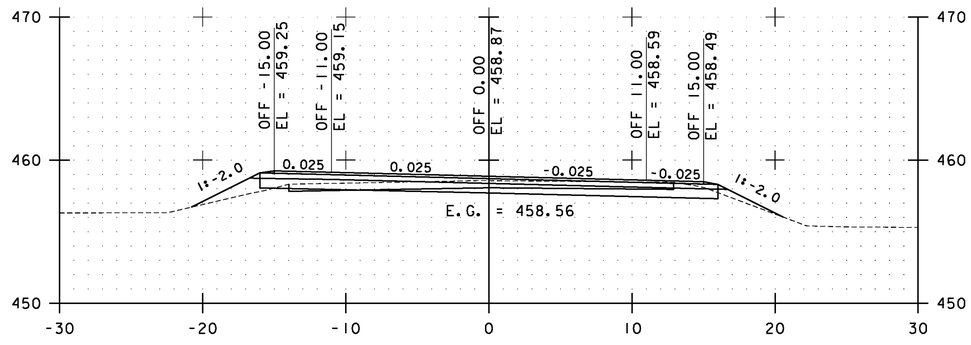
183+50.00



183+00.00

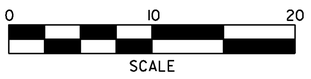


185+00.00



184+50.00

STA. 183+00.00 TO STA. 185+00.00



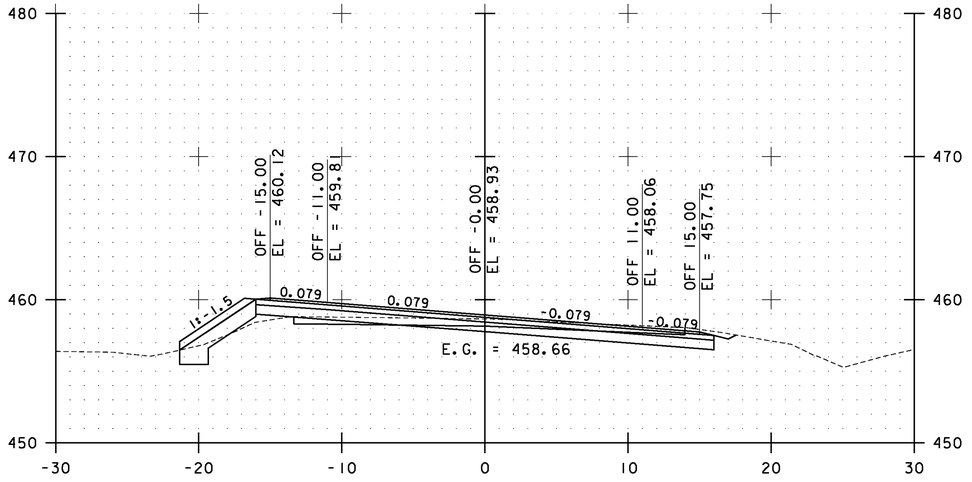
Stantec

ESSEX CROSS SECTIONS SHEET #86

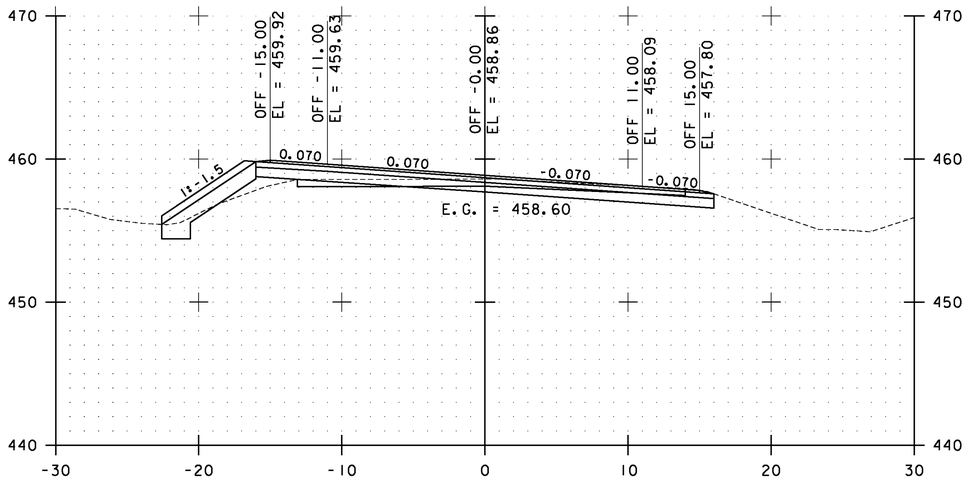
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs086.i

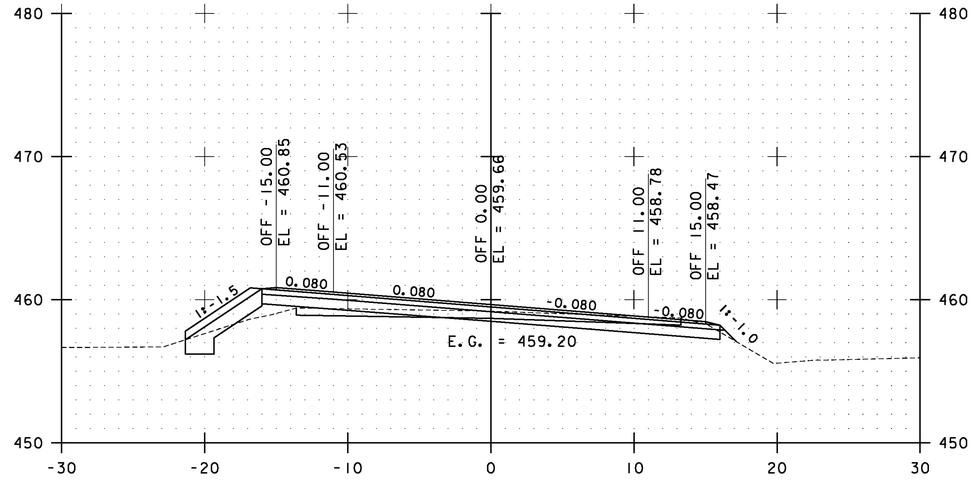
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 177 OF 239



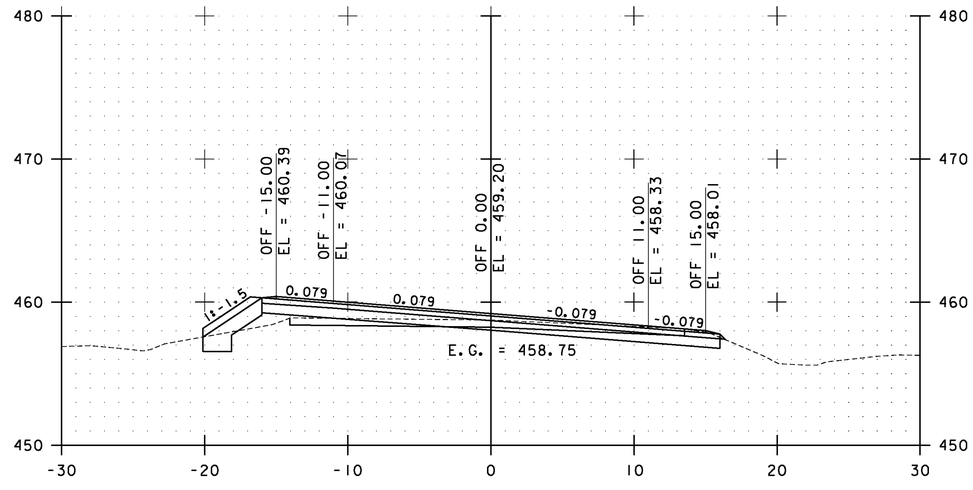
186+00.00



185+50.00



187+00.00



186+50.00

STA. 185+50.00 TO STA. 187+00.00

0 10 20
SCALE

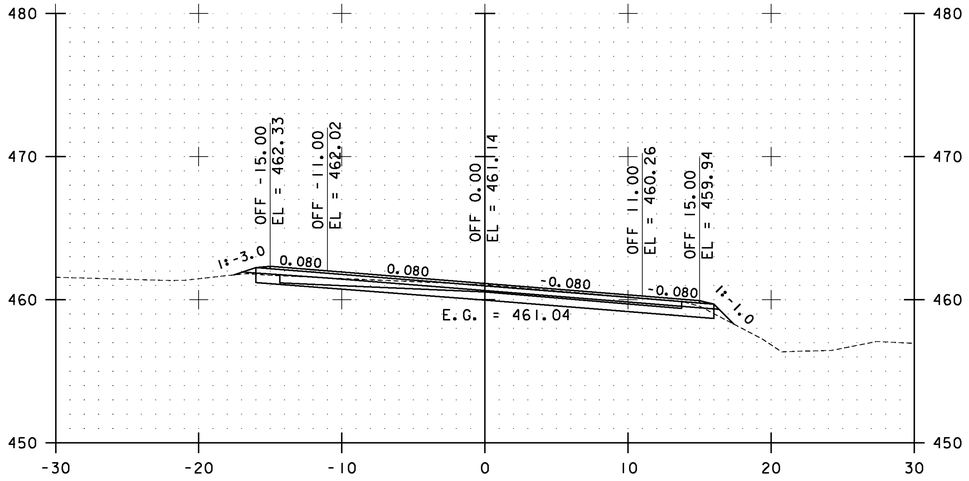
Stantec

ESSEX CROSS SECTIONS SHEET #87

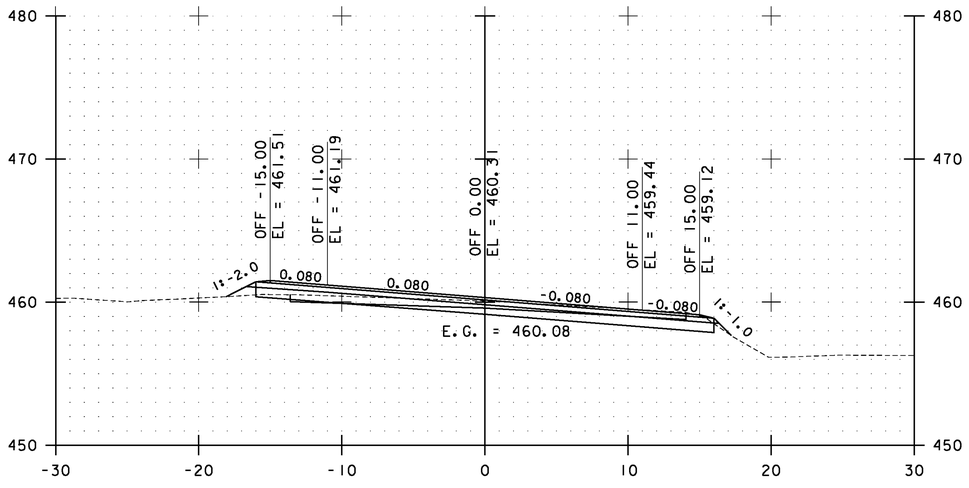
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs087.i

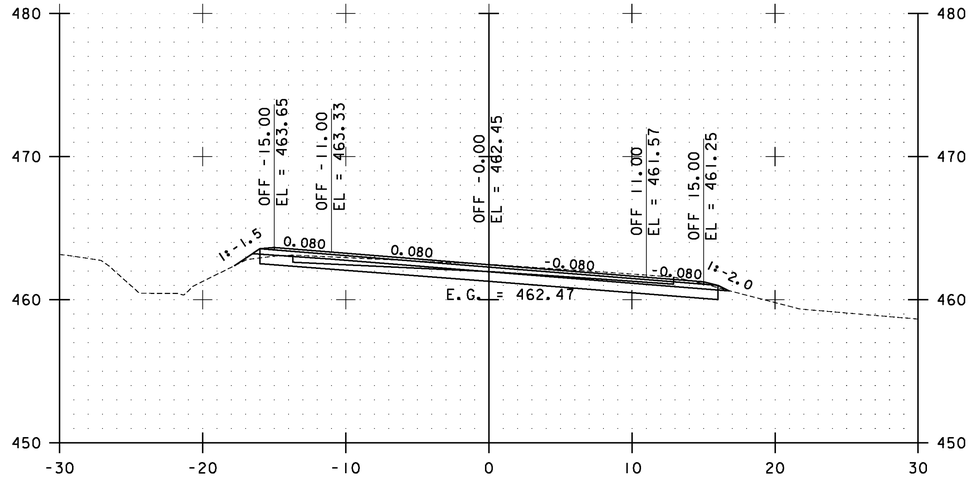
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 178 OF 239



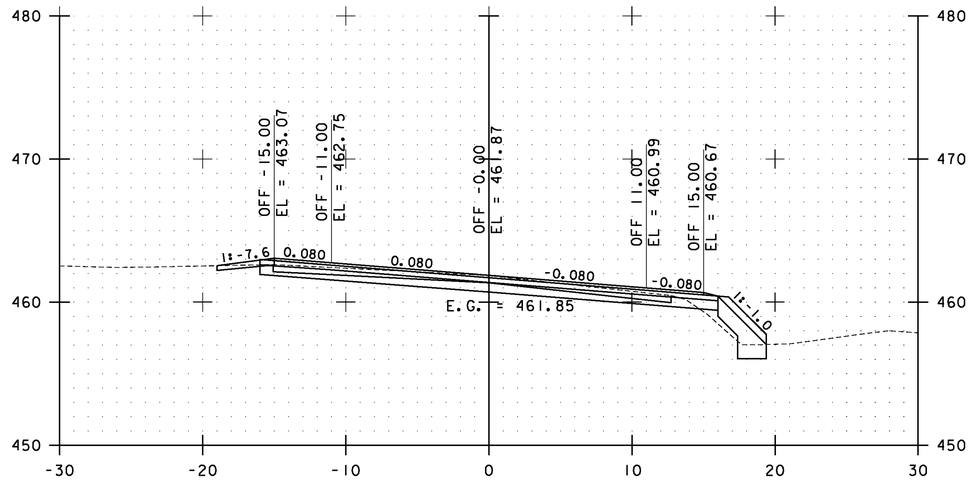
188+00.00



187+50.00



189+00.00



188+50.00

STA. 187+50.00 TO STA. 189+00.00

0 10 20
SCALE

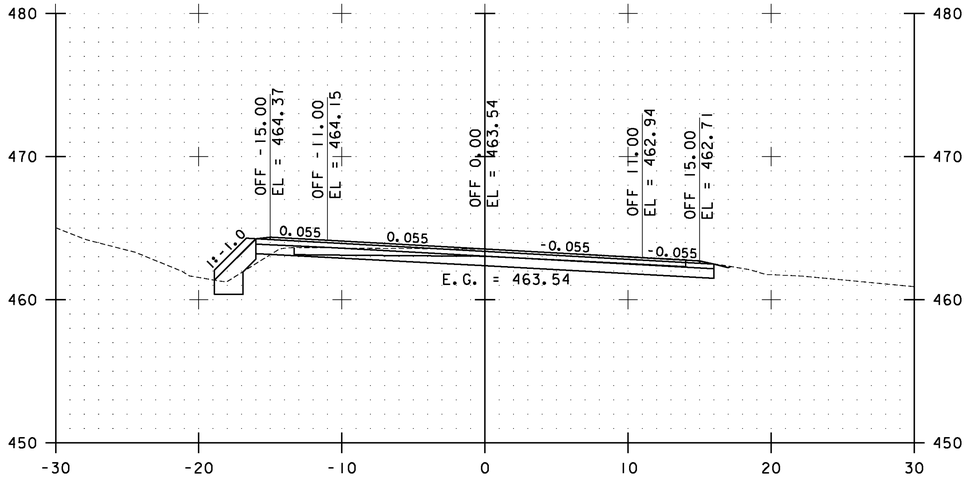
Stantec

ESSEX CROSS SECTIONS SHEET #88

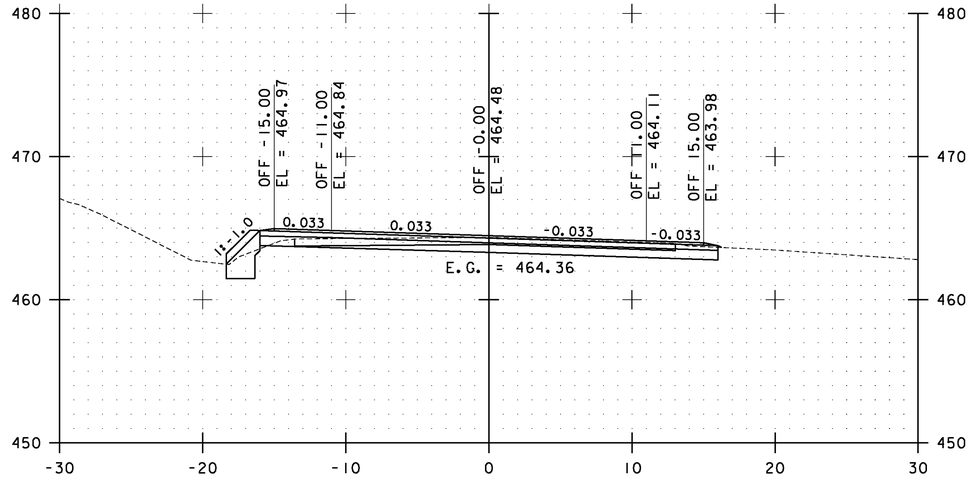
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs088.i

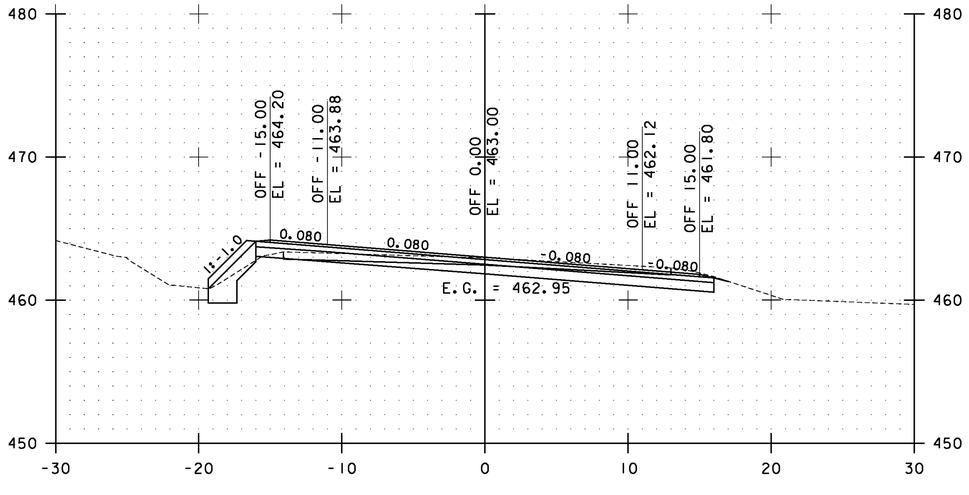
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 179 OF 239



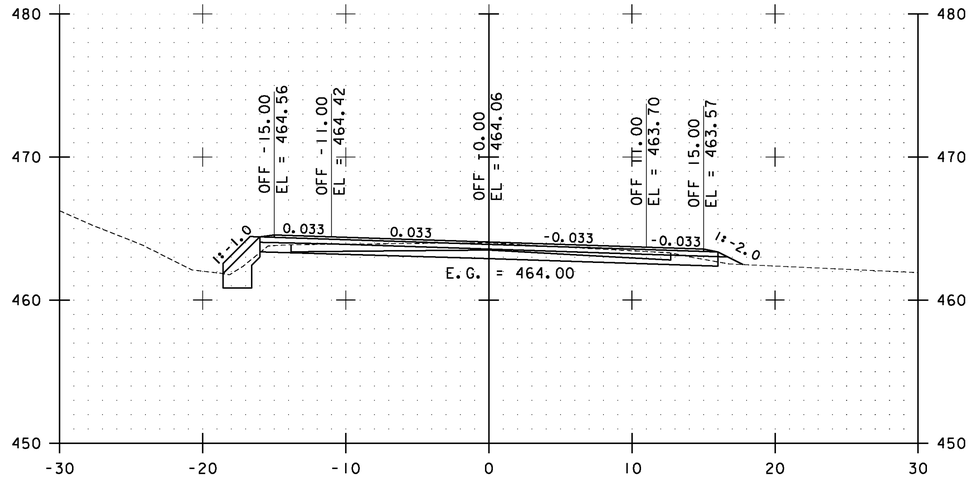
190+00.00



191+00.00



189+50.00



190+50.00

STA. 189+50.00 TO STA. 191+00.00

0 10 20
SCALE

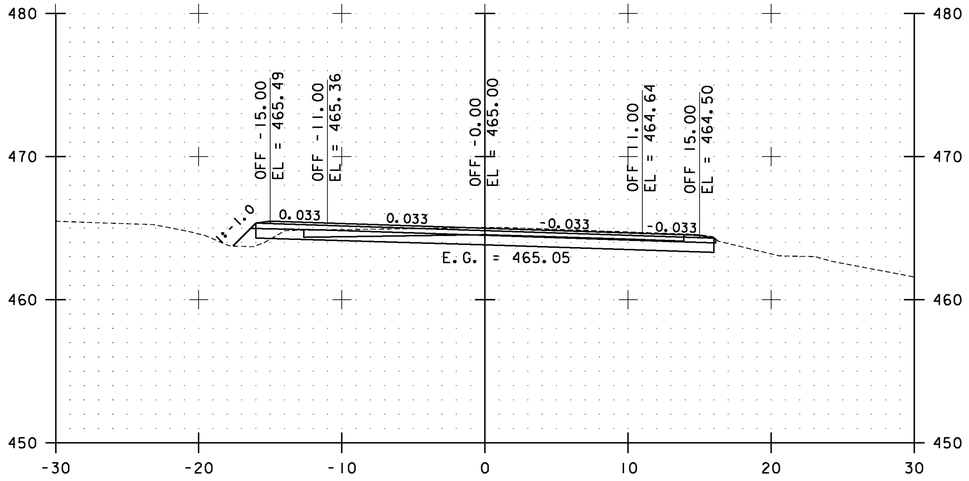
Stantec

ESSEX CROSS SECTIONS SHEET #89

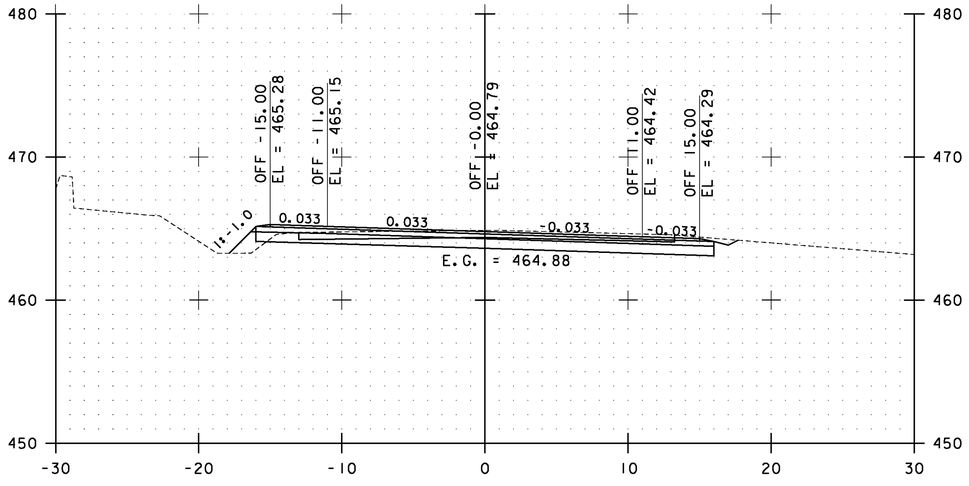
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs089.i

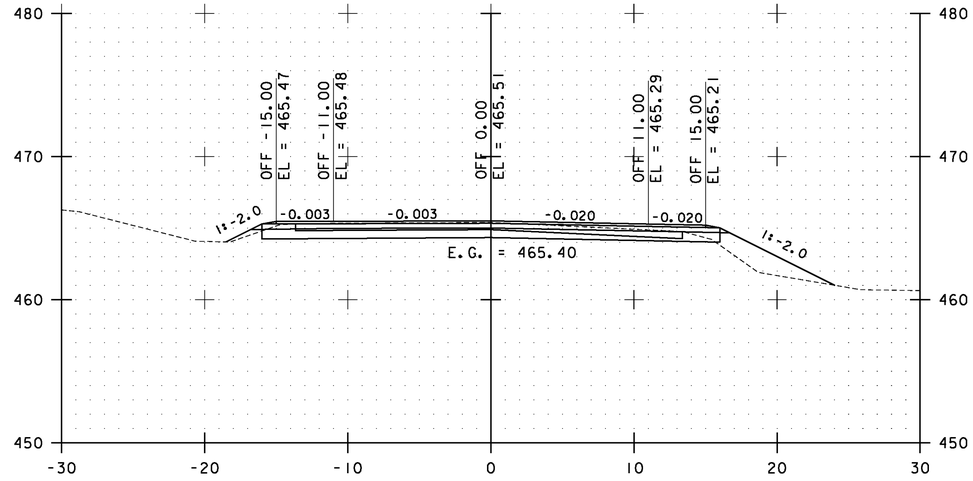
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 180 OF 239



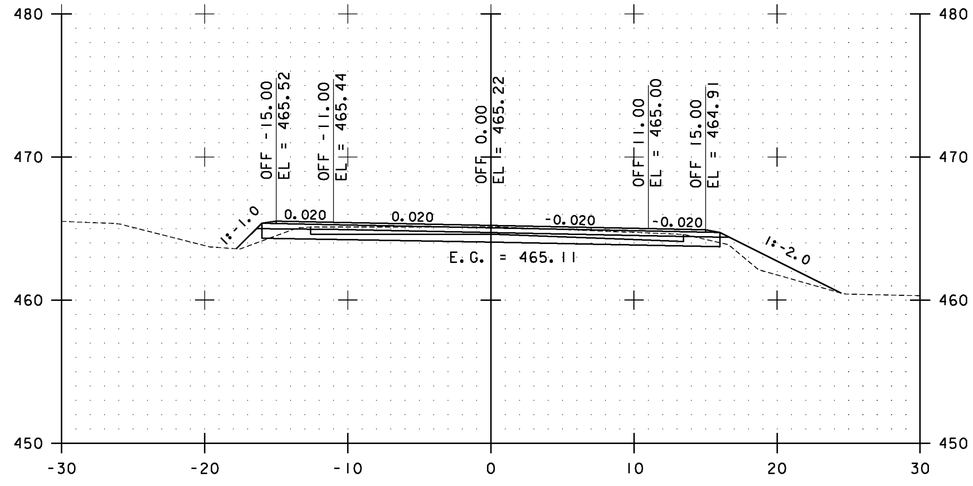
192+00.00



191+50.00



193+00.00



192+50.00

STA. 191+50.00 TO STA. 193+00.00

0 10 20
SCALE

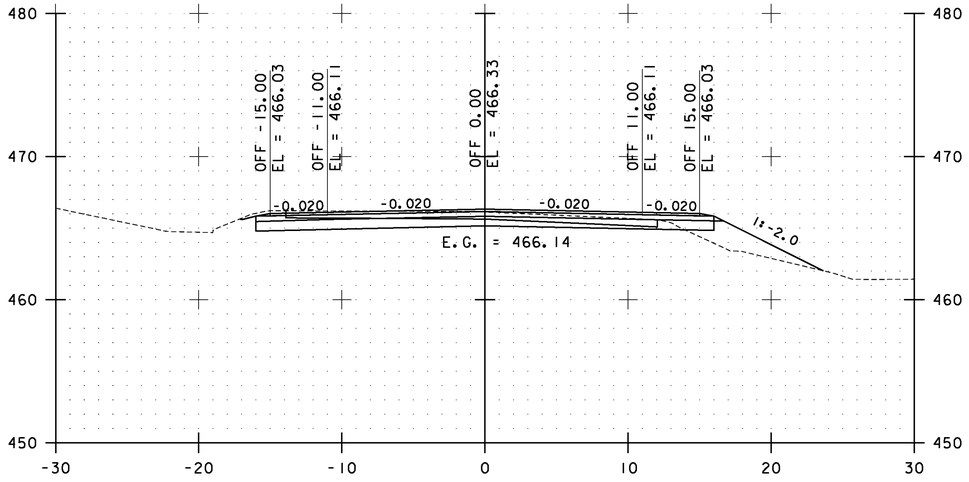
Stantec

ESSEX CROSS SECTIONS SHEET #90

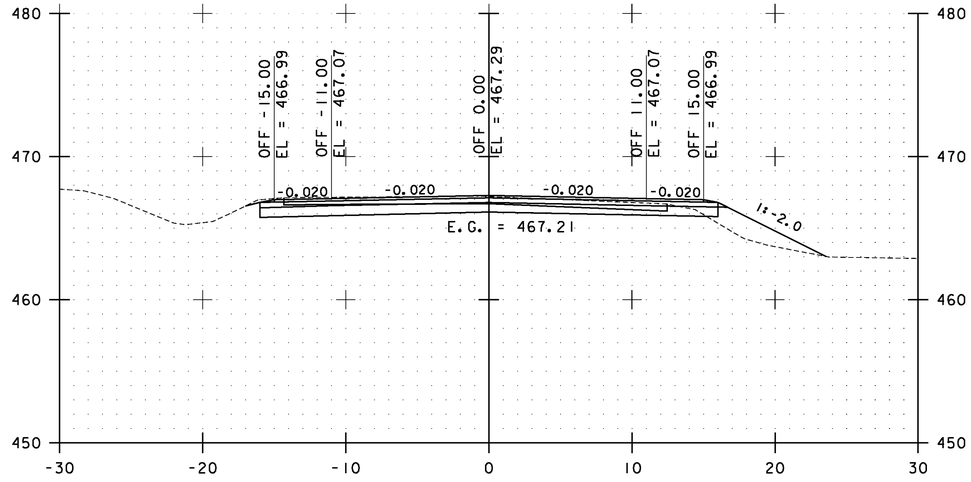
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs090.i

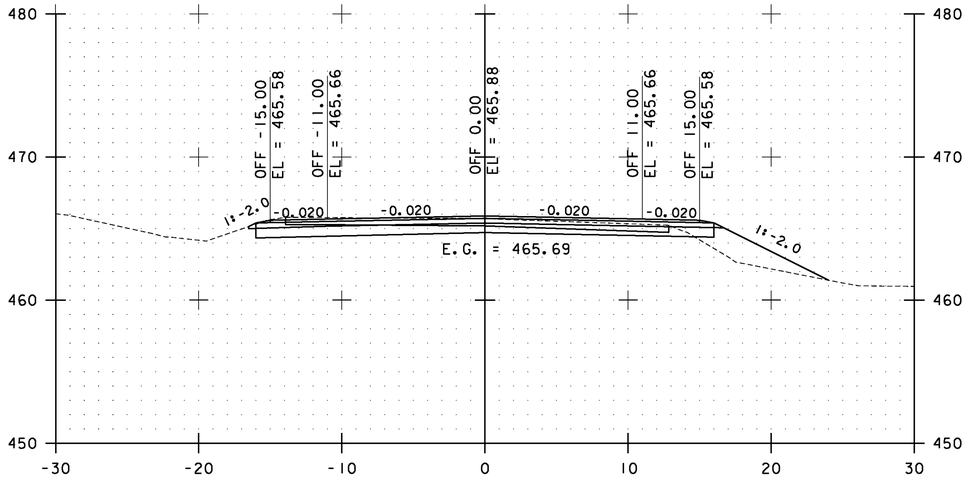
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 181 OF 239



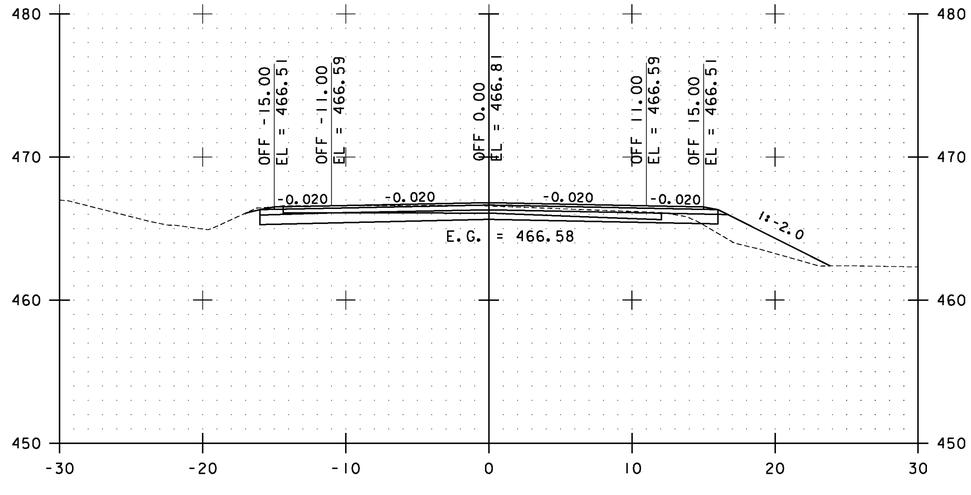
194+00.00



195+00.00



193+50.00



194+50.00

STA. 193+50.00 TO STA. 195+00.00

0 10 20
SCALE

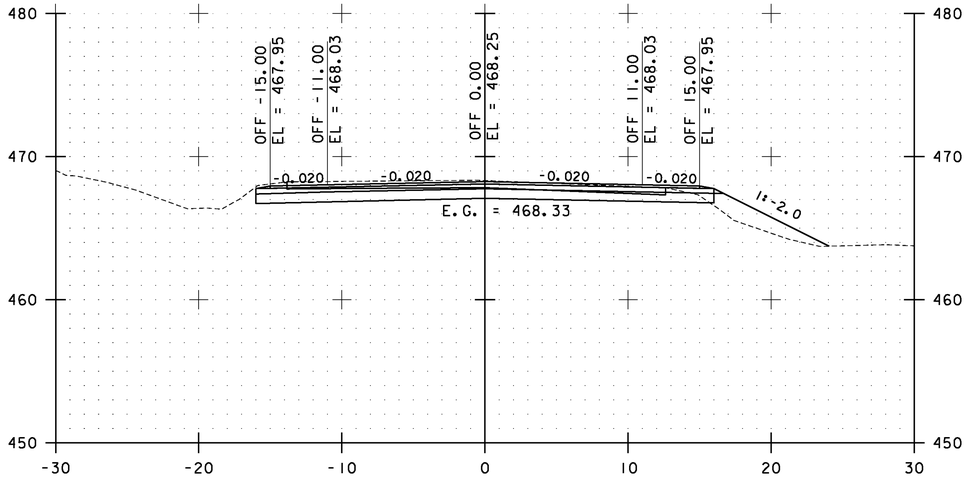
Stantec

ESSEX CROSS SECTIONS SHEET #91

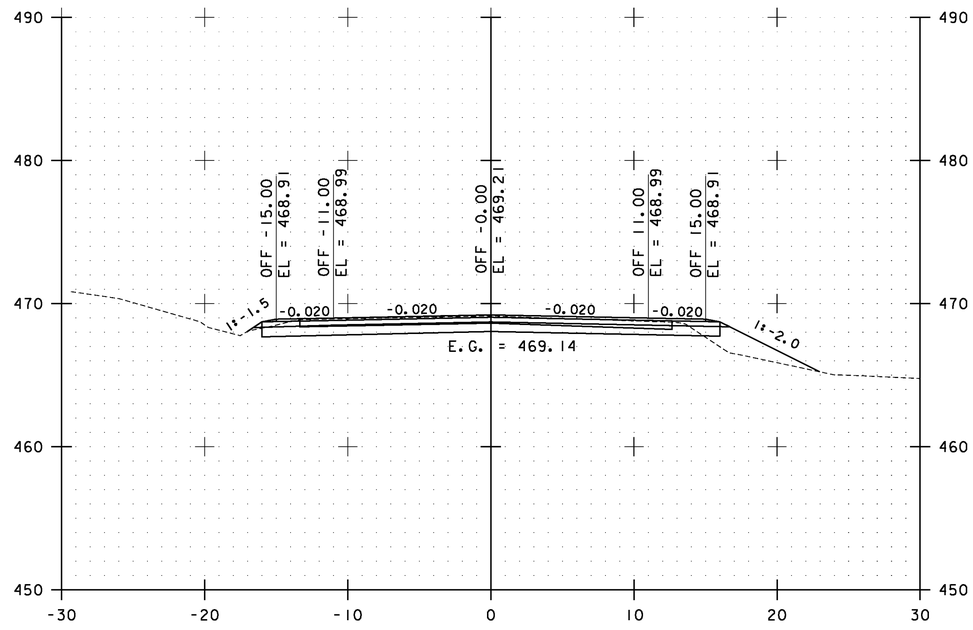
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs091.i

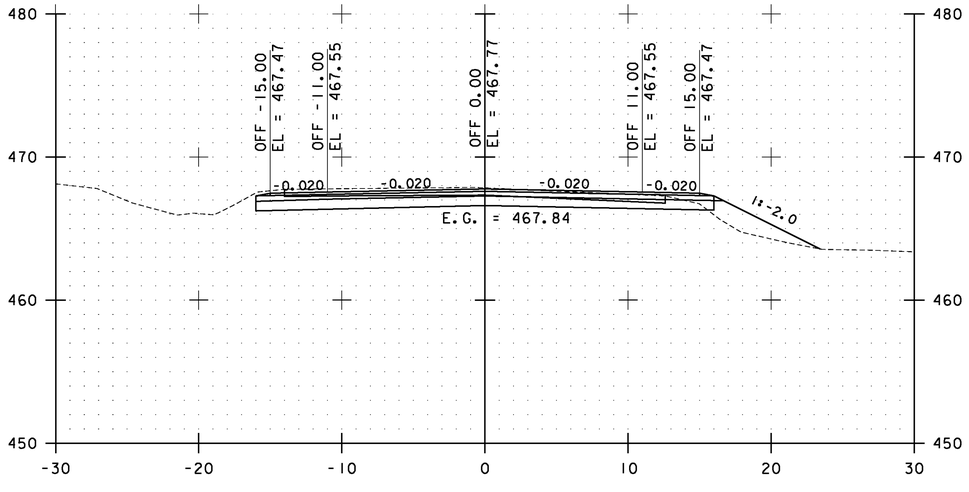
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 182 OF 239



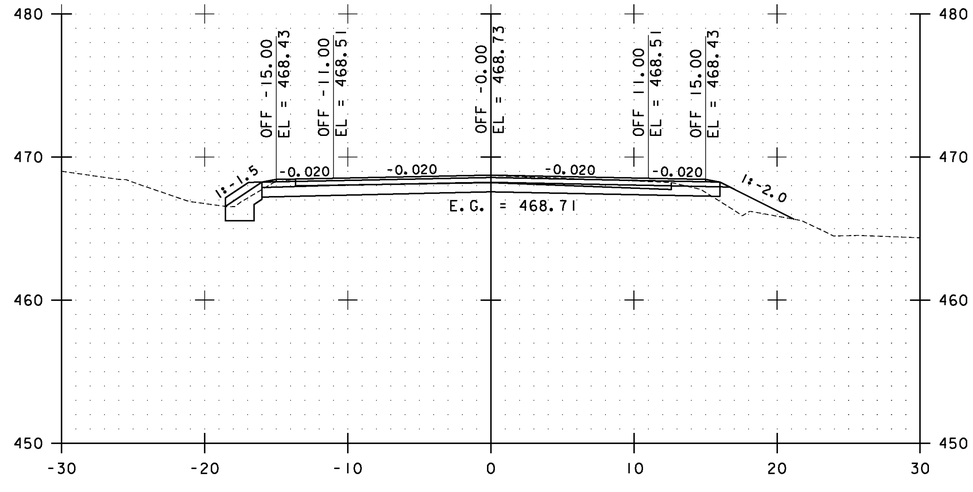
196+00.00



197+00.00



195+50.00



196+50.00

STA. 195+50.00 TO STA. 197+00.00

0 10 20
SCALE

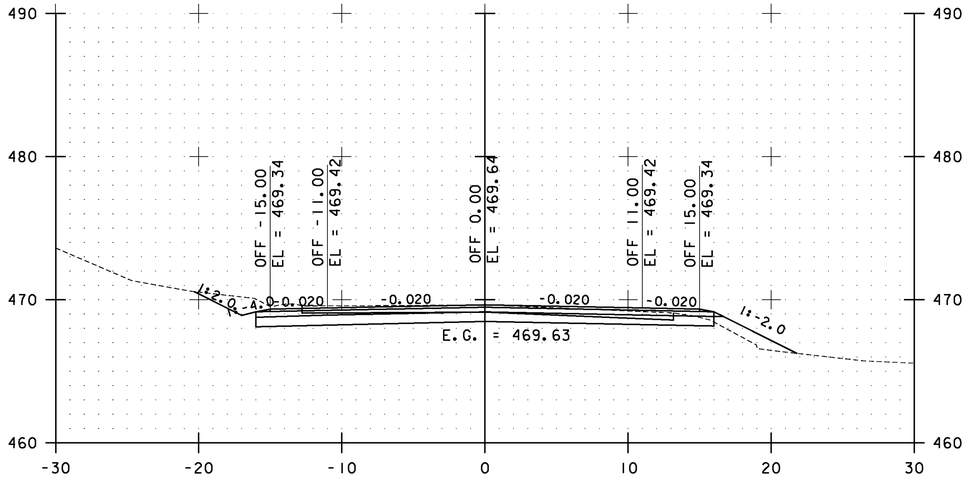
Stantec

ESSEX CROSS SECTIONS SHEET #92

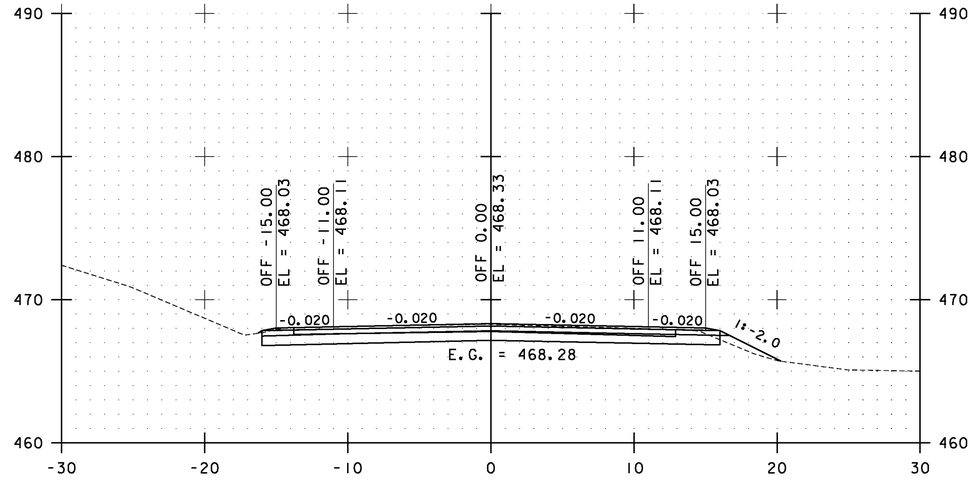
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs092.i

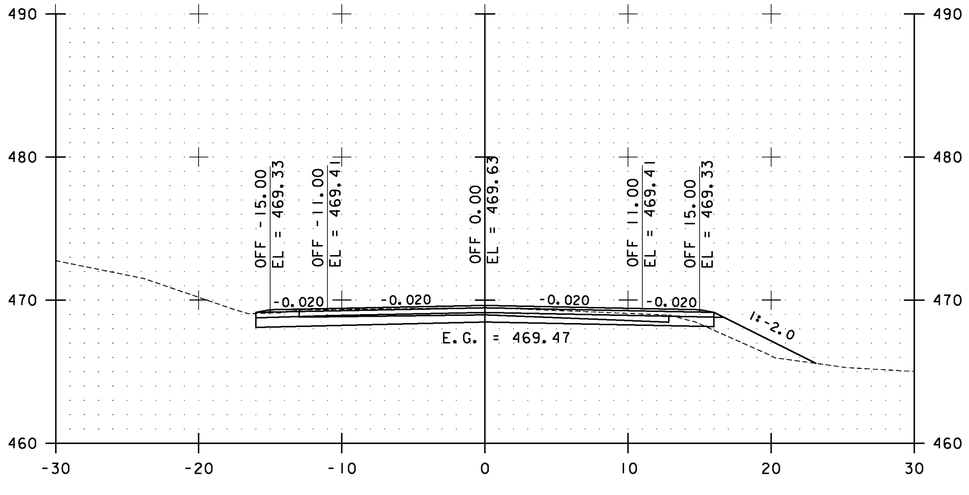
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 183 OF 239



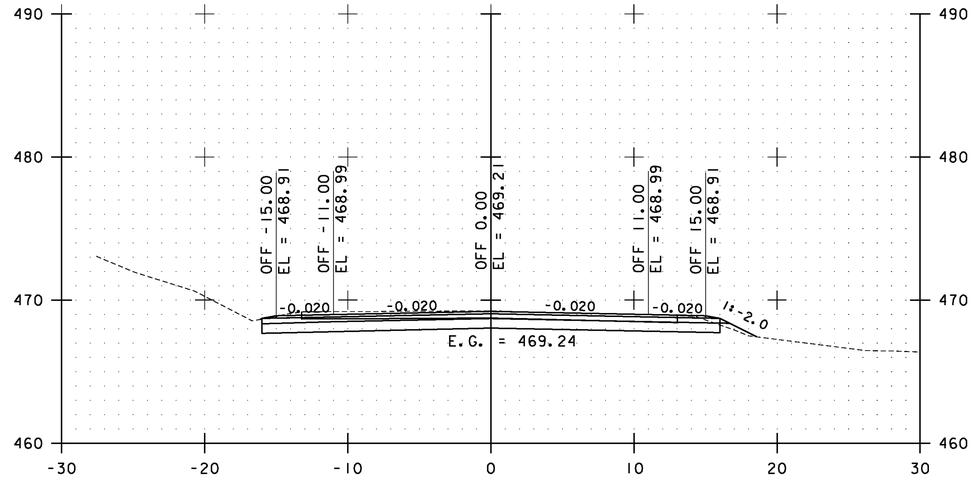
198+00.00



199+00.00



197+50.00



198+50.00

STA. 197+50.00 TO STA. 199+00.00

0 10 20
SCALE

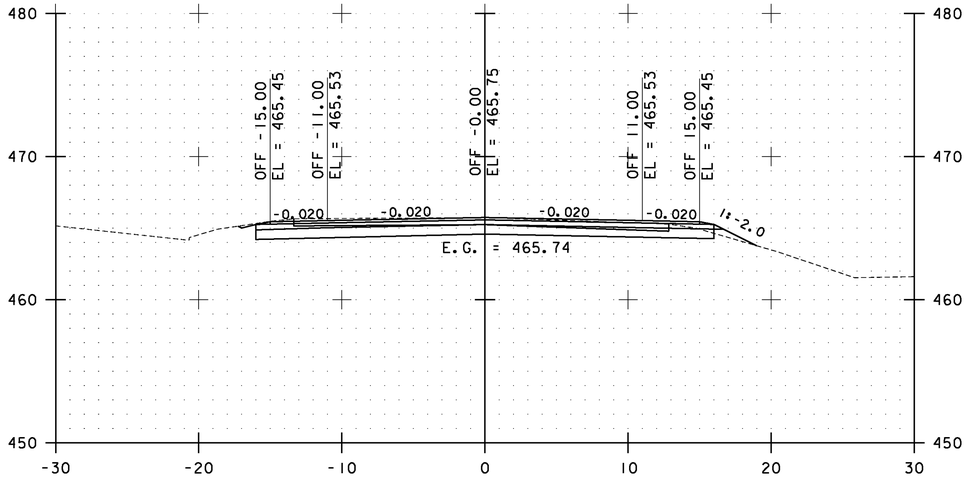
Stantec

ESSEX CROSS SECTIONS SHEET #93

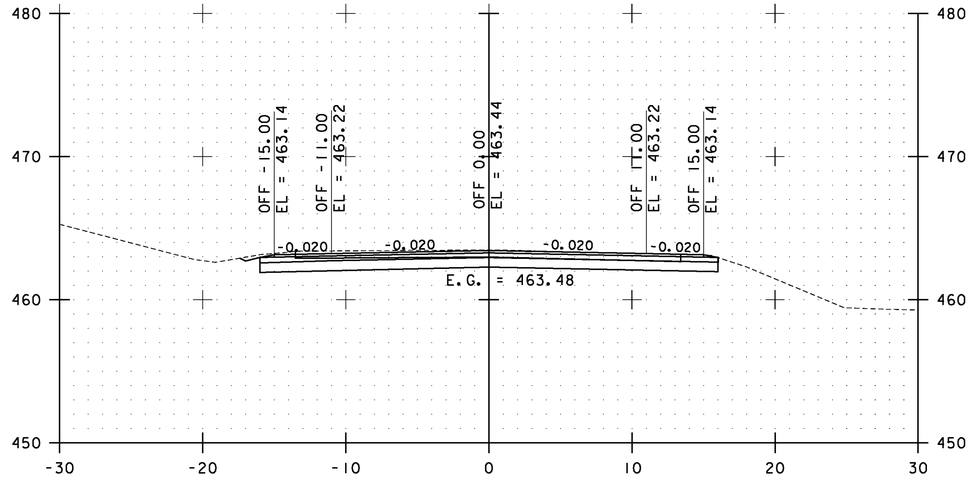
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs093.i

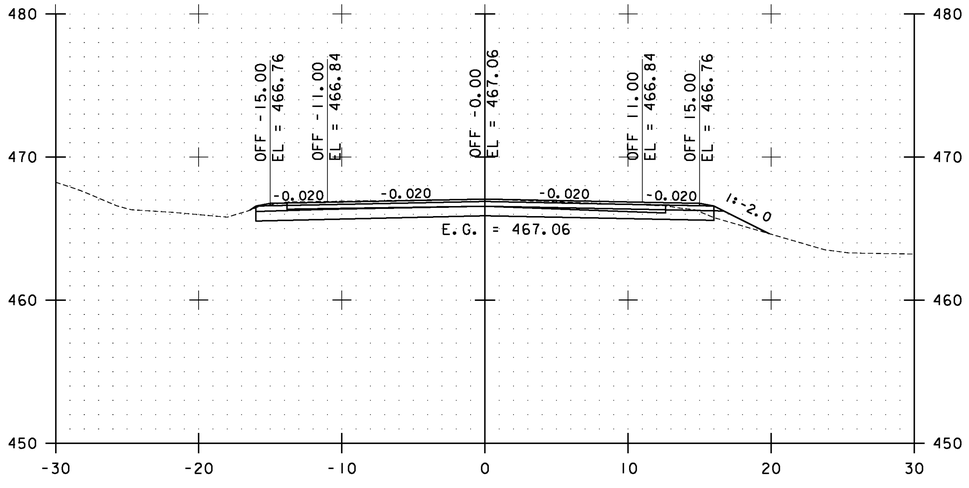
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 184 OF 239



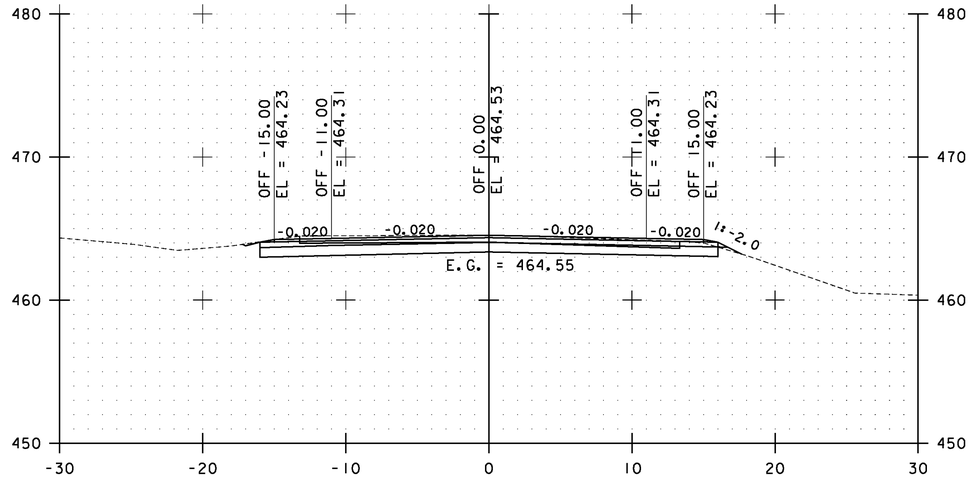
200+00.00



201+00.00



199+50.00



200+50.00

STA. 199+50.00 TO STA 201+00.00

0 10 20
SCALE

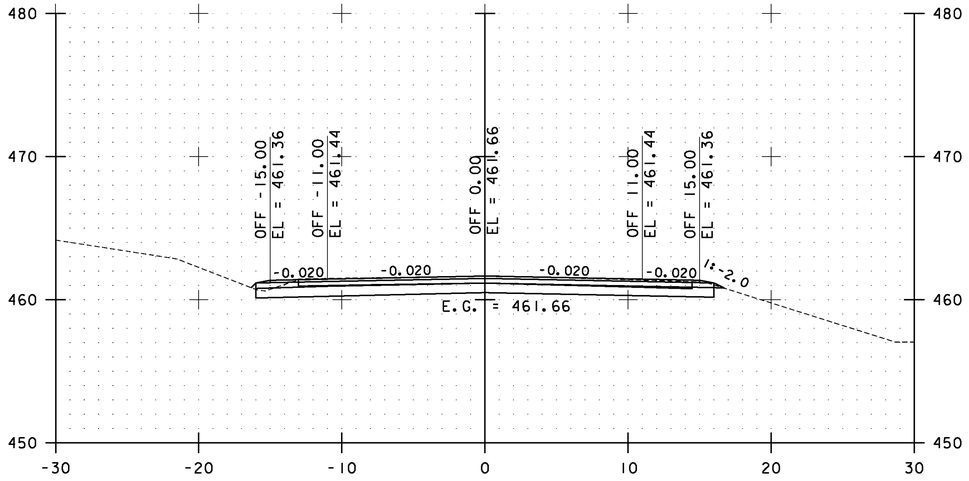
Stantec

ESSEX CROSS SECTIONS SHEET #94

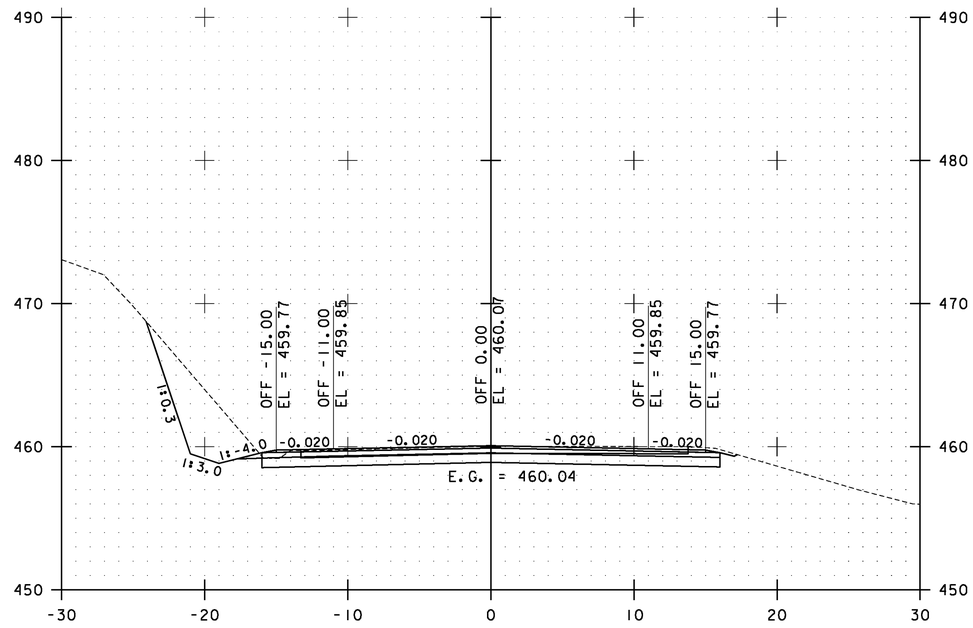
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs094.i

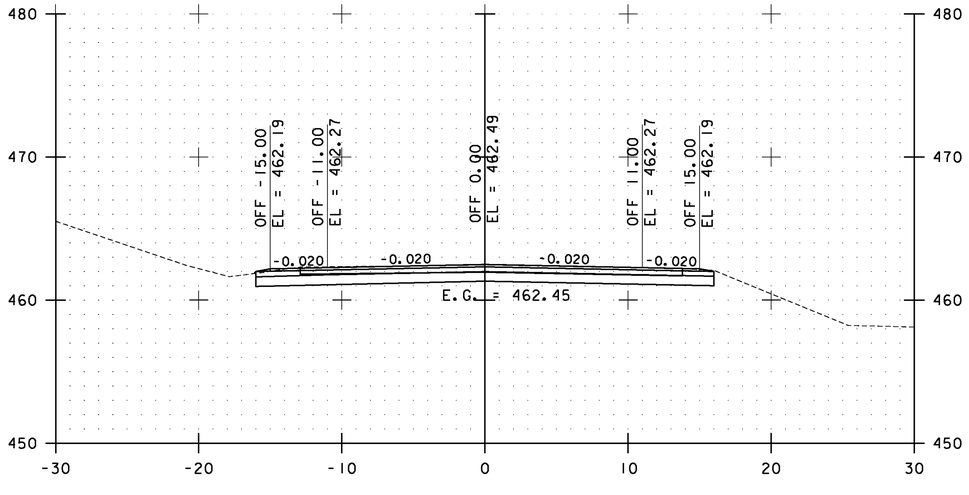
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 185 OF 239



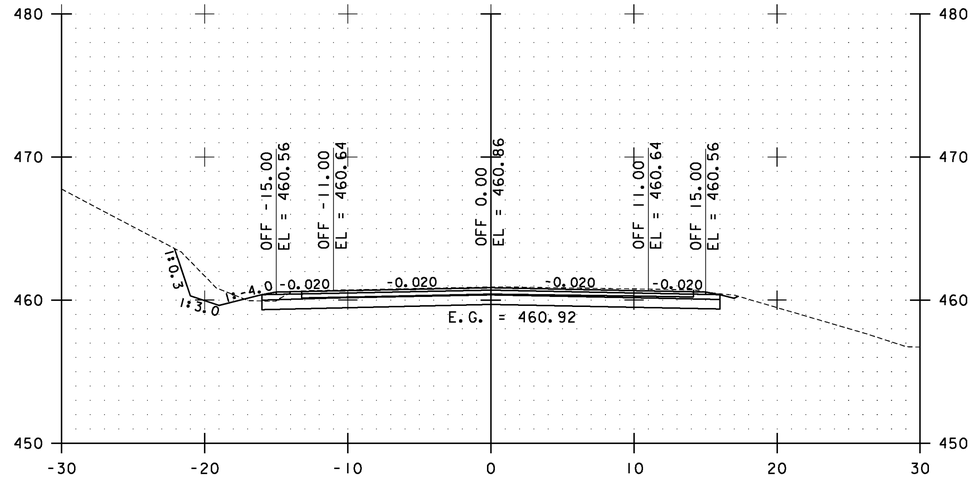
202+00.00



203+00.00



201+50.00



202+50.00

STA. 201+50.00 TO STA. 203+00.00

0 10 20
SCALE

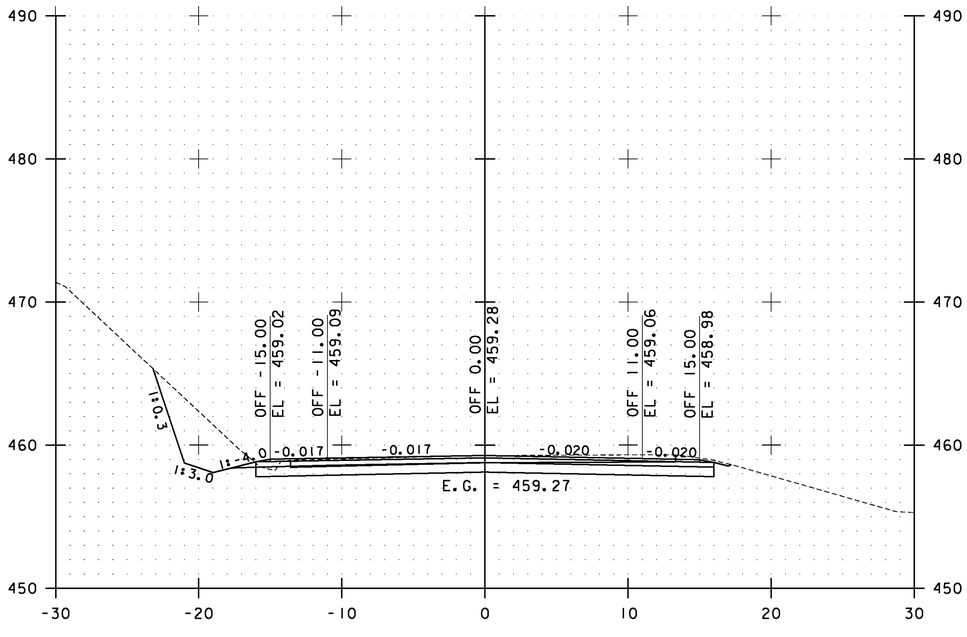
Stantec

ESSEX CROSS SECTIONS SHEET #95

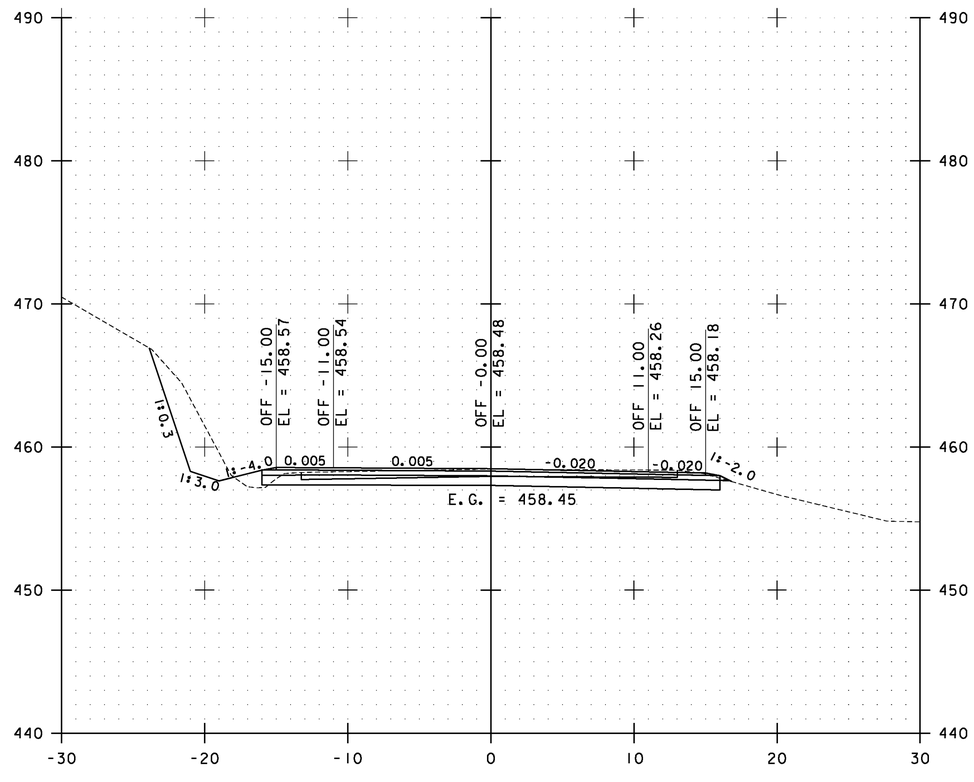
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs095.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 186 OF 239



203+50.00



204+00.00

STA. 203+50.00 TO STA. 204+00.00

0 10 20

SCALE

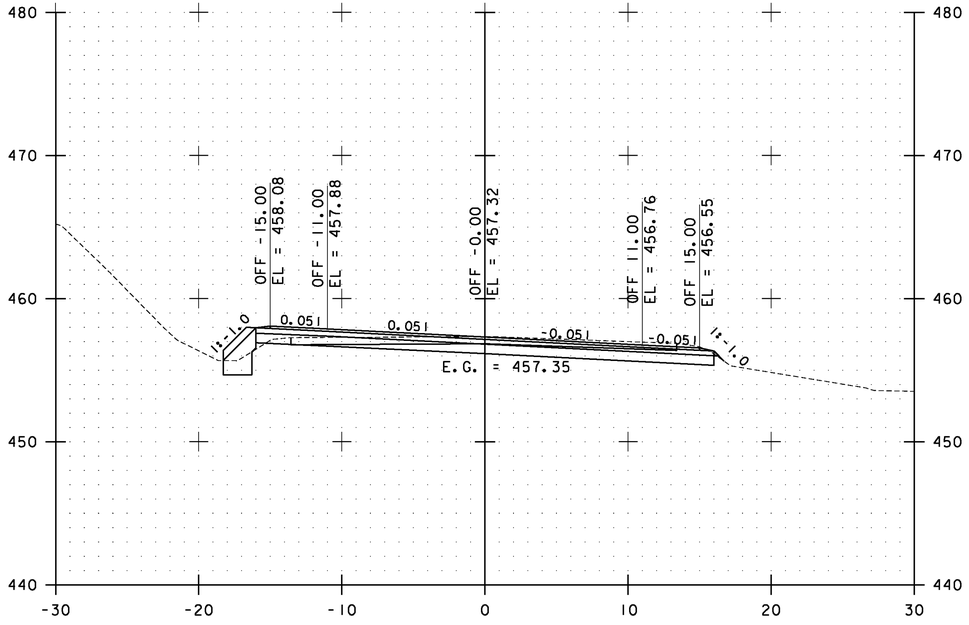
Stantec

ESSEX CROSS SECTIONS SHEET #96

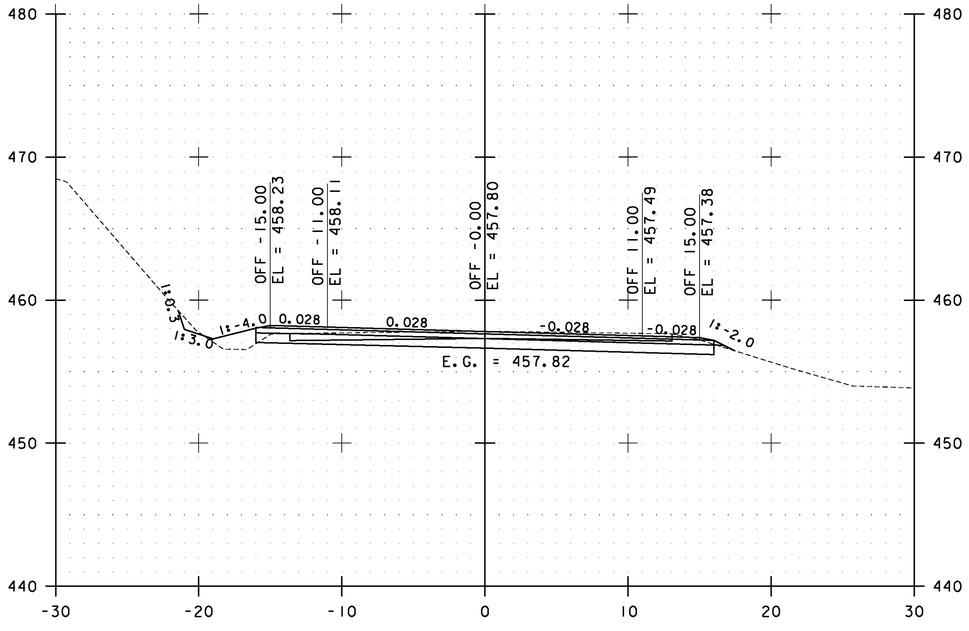
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs096.i

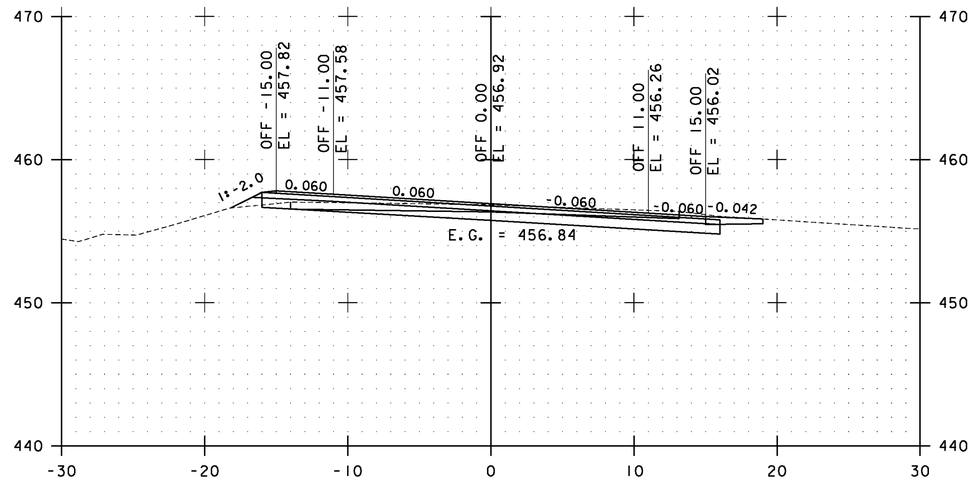
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 187 OF 239



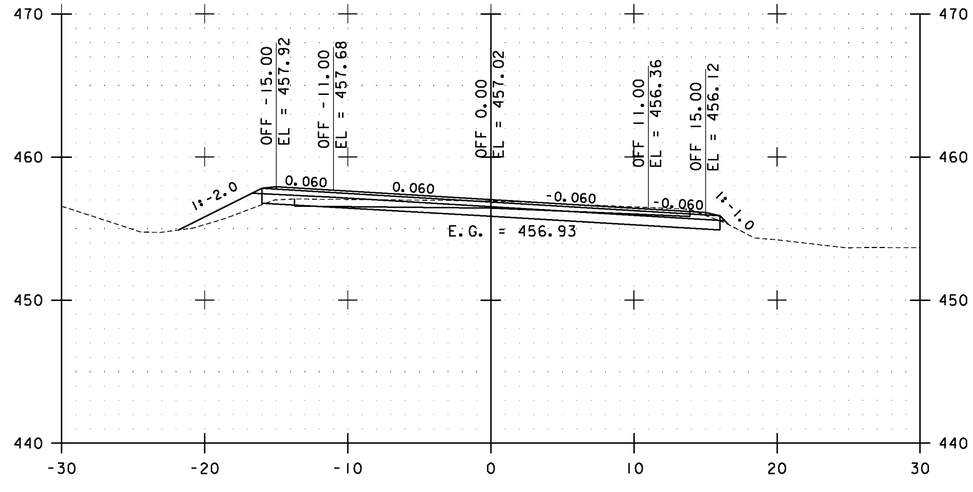
205+00.00



204+50.00



206+00.00



205+50.00

STA. 204+50.00 TO STA. 206+00.00

0 10 20
SCALE

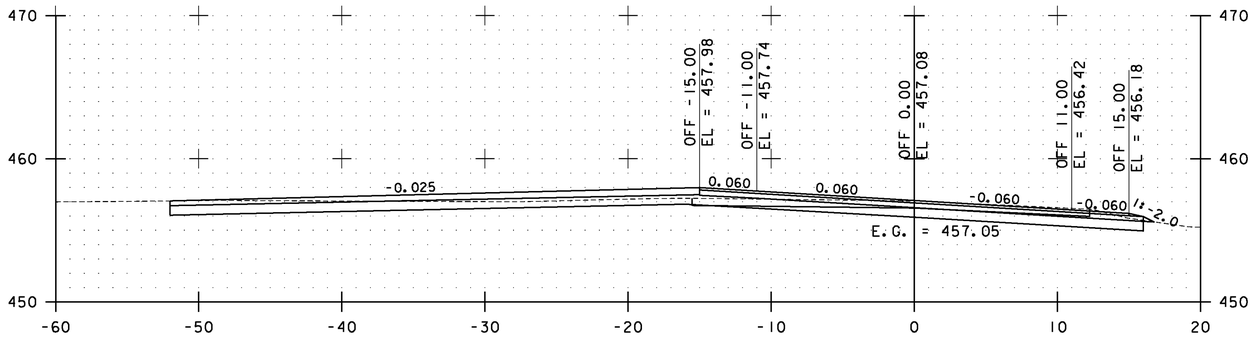
Stantec

ESSEX CROSS SECTIONS SHEET #97

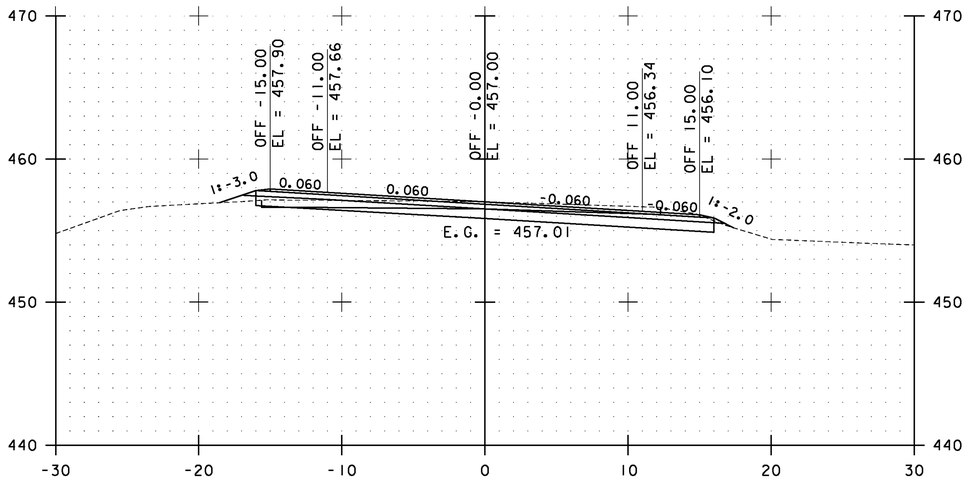
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs097.i

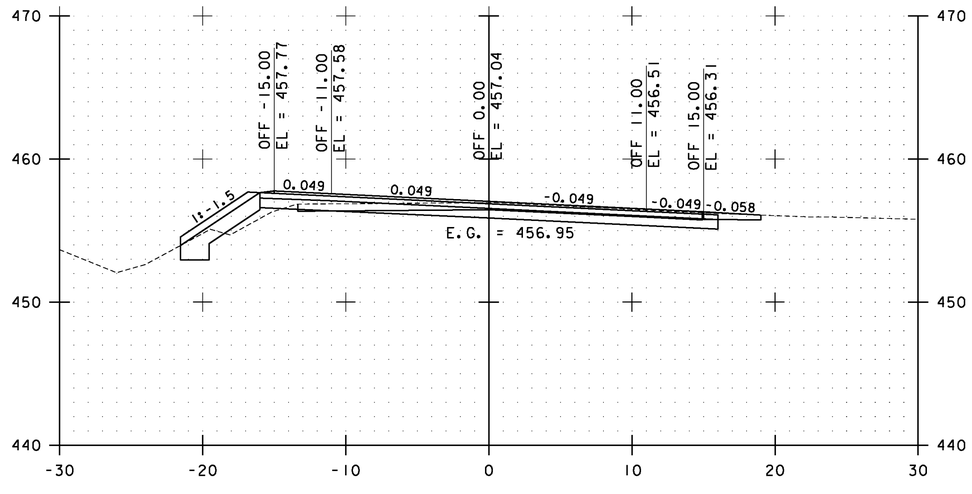
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 188 OF 239



207+00.00



206+50.00



207+50.00

STA. 206+50.00 TO STA. 207+50.00

0 10 20
SCALE

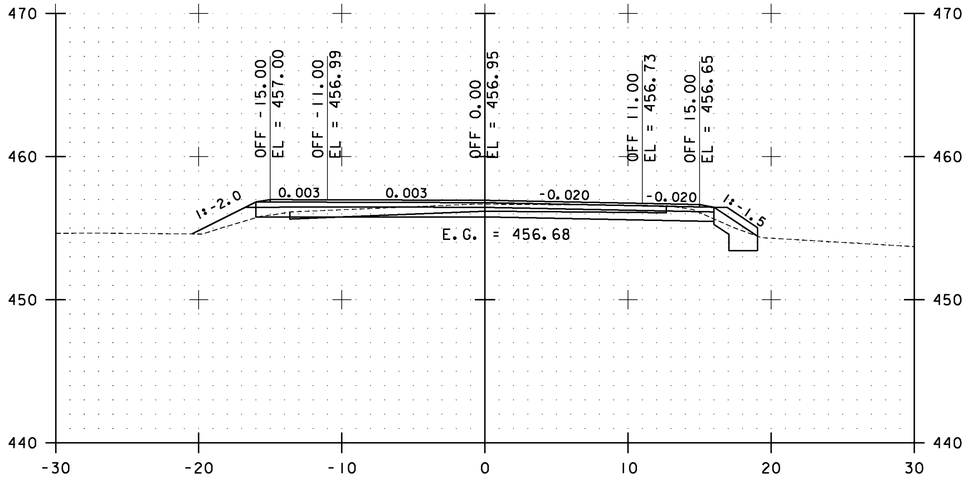
Stantec

ESSEX CROSS SECTIONS SHEET #98

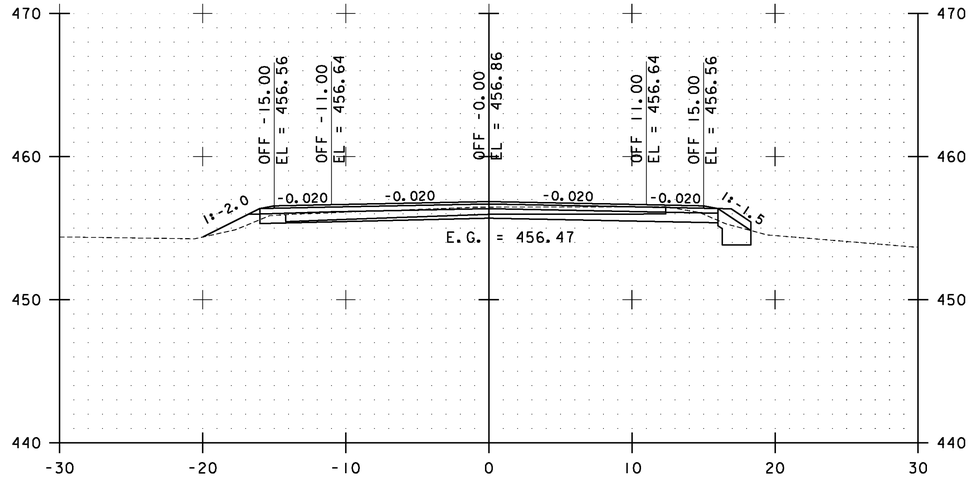
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs098.i

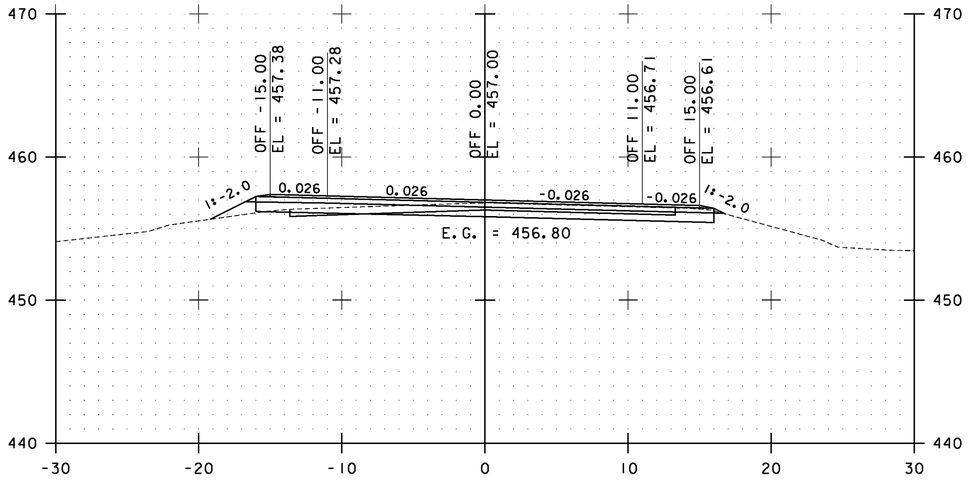
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 189 OF 239



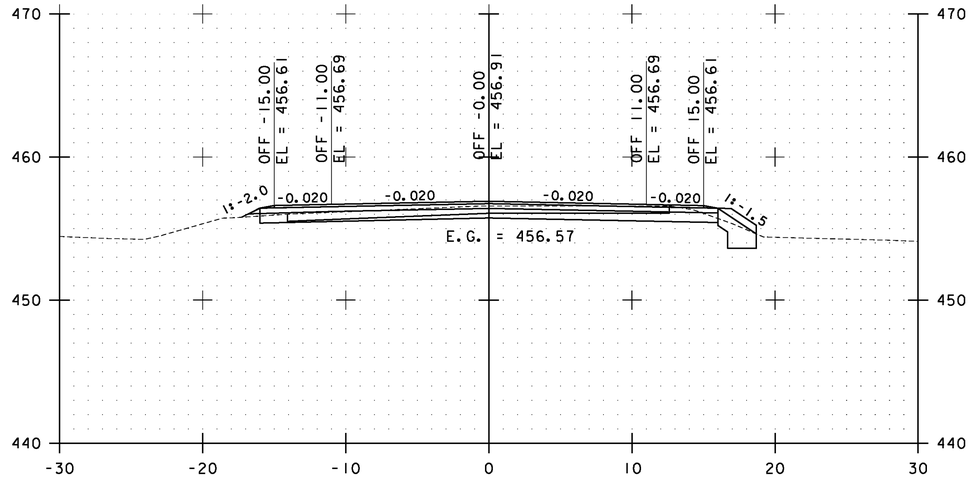
208+50.00



209+50.00



208+00.00



209+00.00

STA. 208+00.00 TO STA. 209+50.00

0 10 20
SCALE

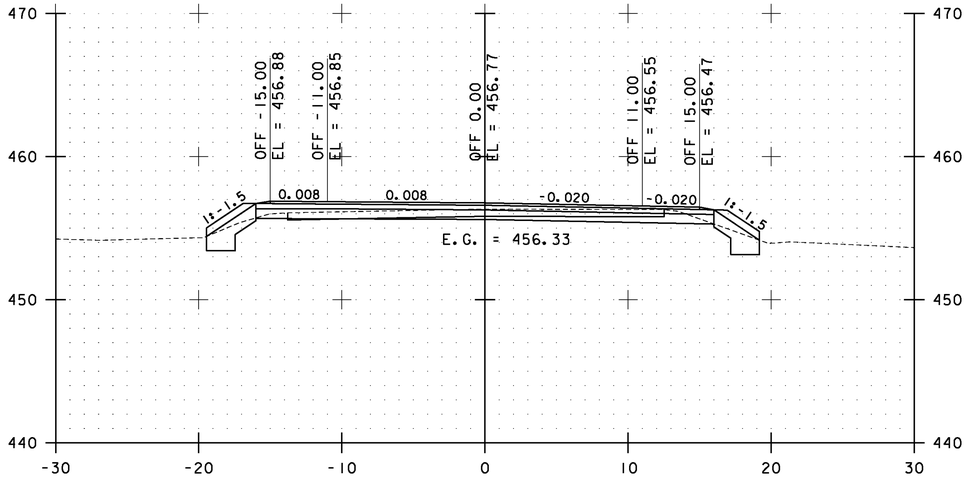
Stantec

ESSEX CROSS SECTIONS SHEET #99

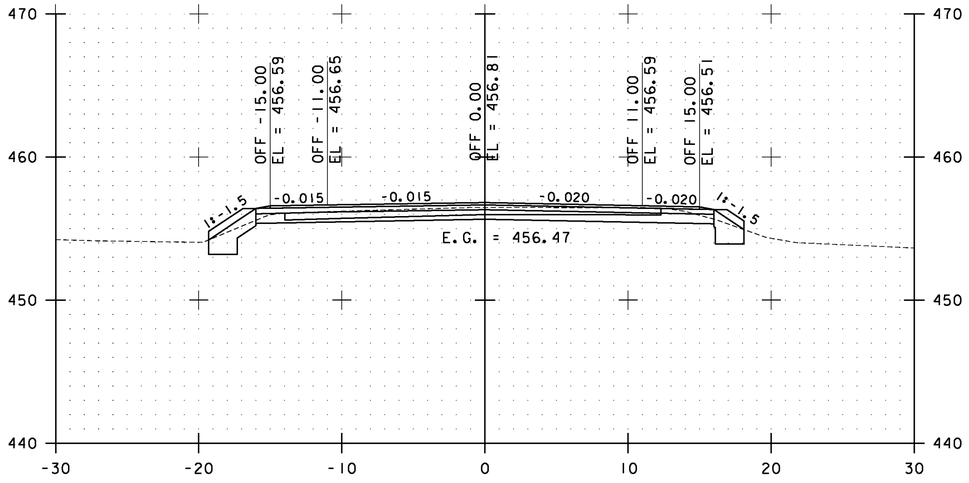
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs099.i

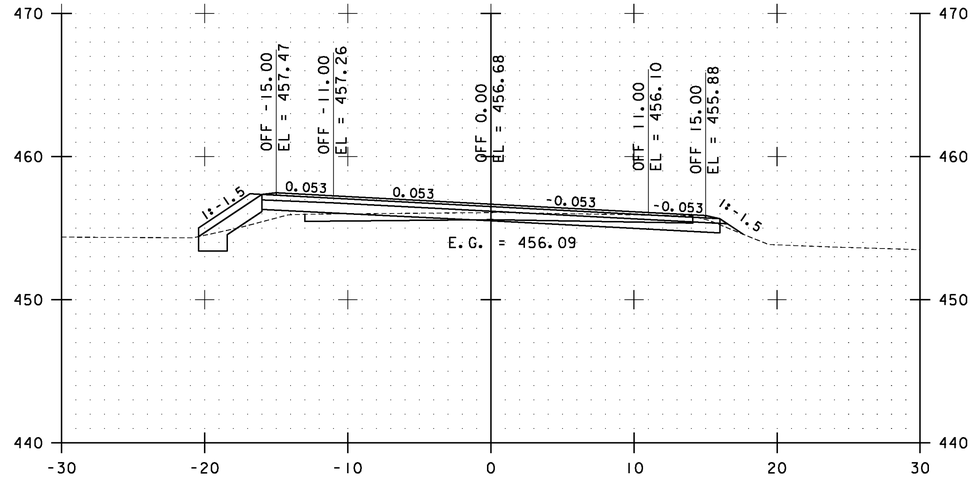
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 190 OF 239



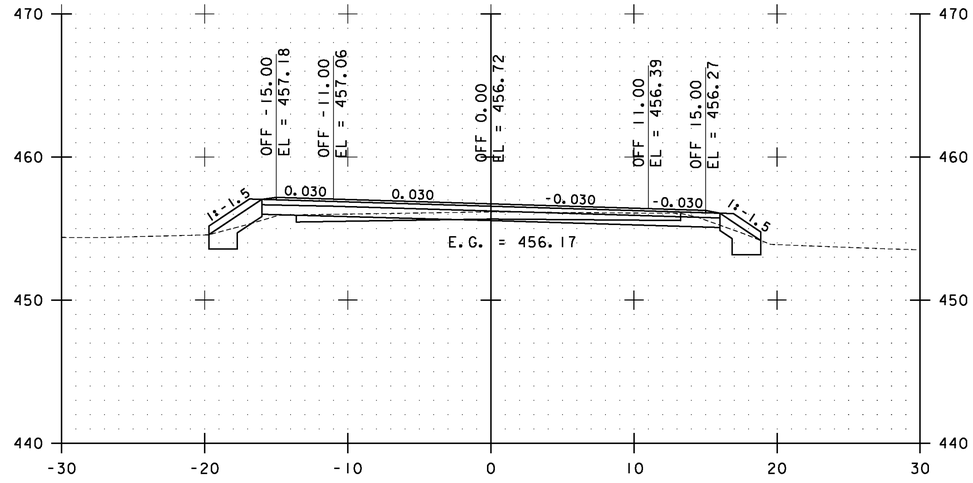
210+50.00



210+00.00



211+50.00



211+00.00

STA. 210+00.00 TO STA. 211+50.00

0 10 20
SCALE

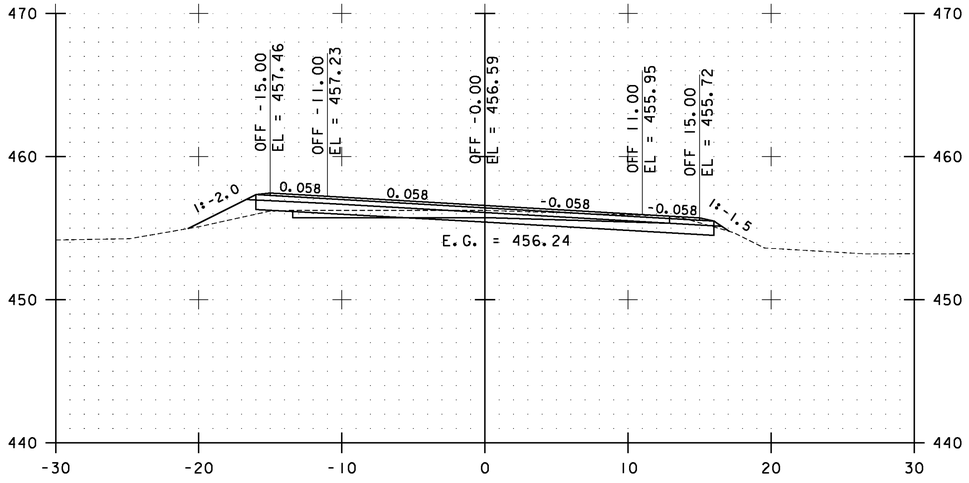
Stantec

ESSEX CROSS SECTIONS SHEET #100

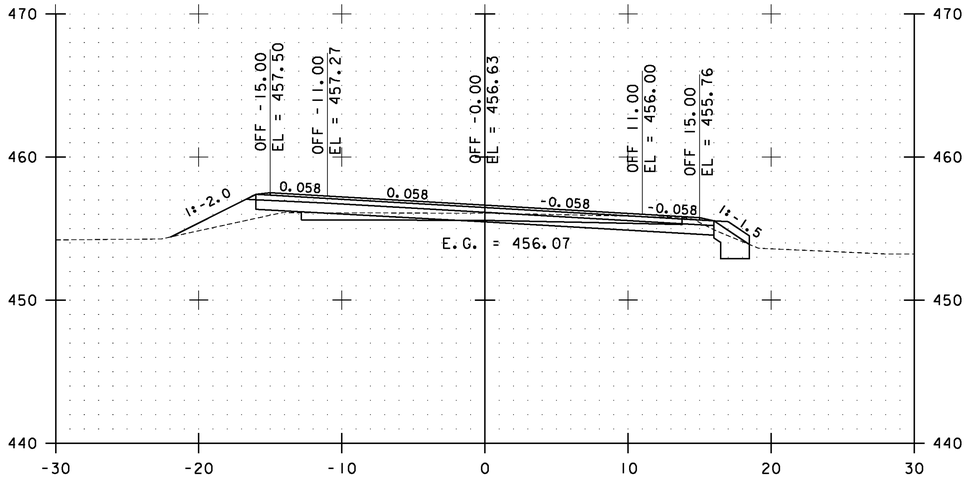
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs100.i

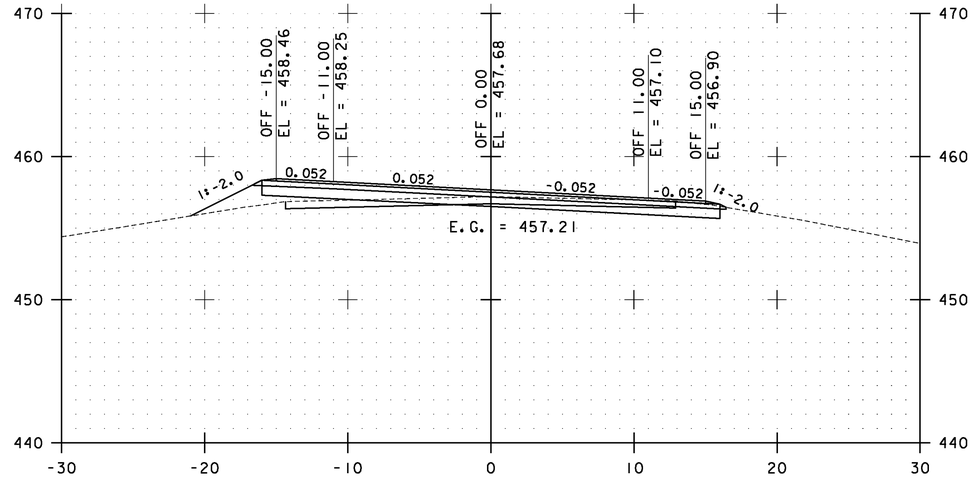
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 191 OF 239



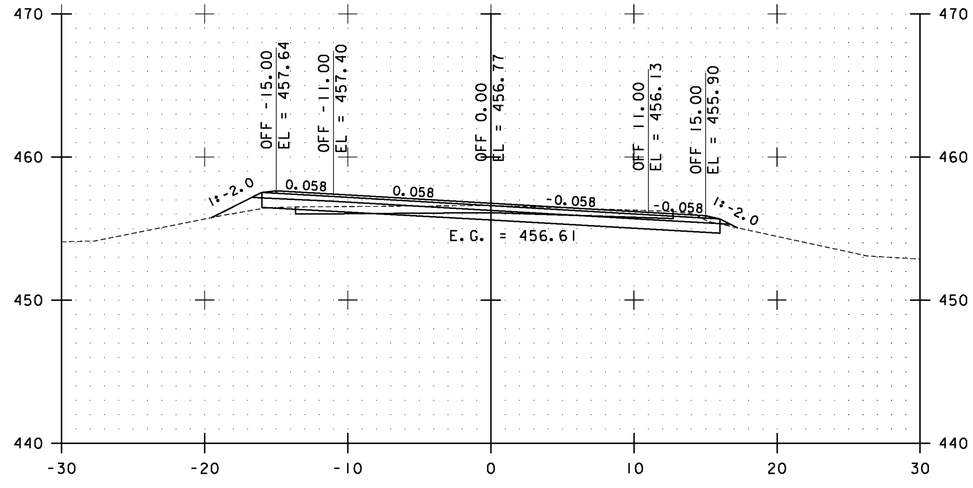
212+50.00



212+00.00



213+50.00



213+00.00

STA. 212+00.00 TO STA. 213+50.00

0 10 20
SCALE

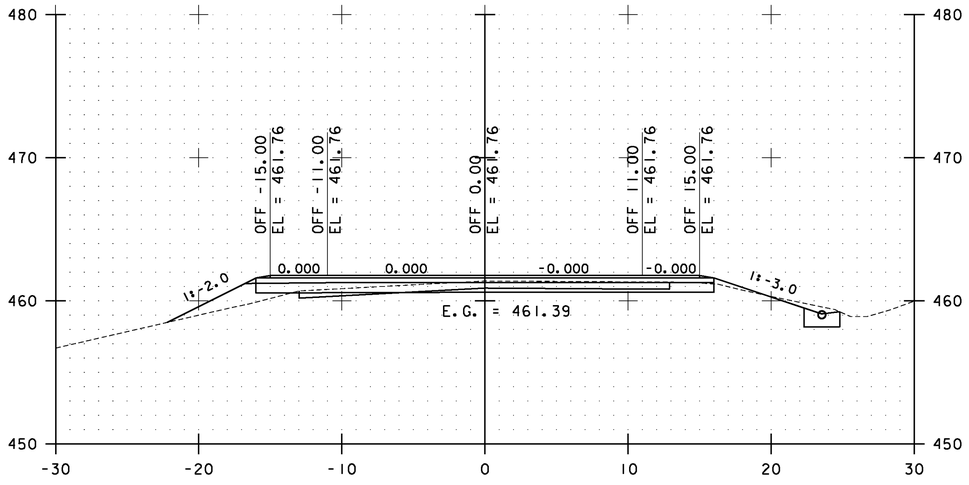
Stantec

ESSEX CROSS SECTIONS SHEET #101

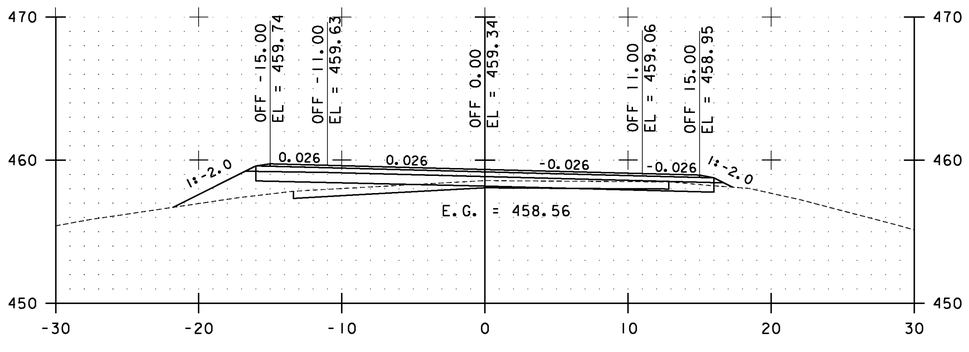
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs101.i

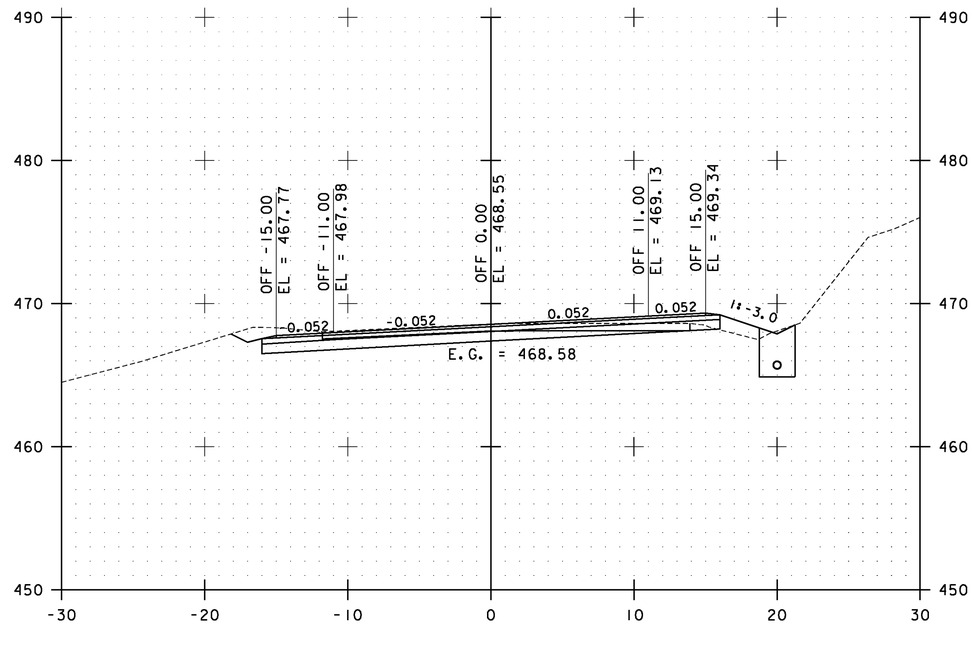
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 192 OF 239



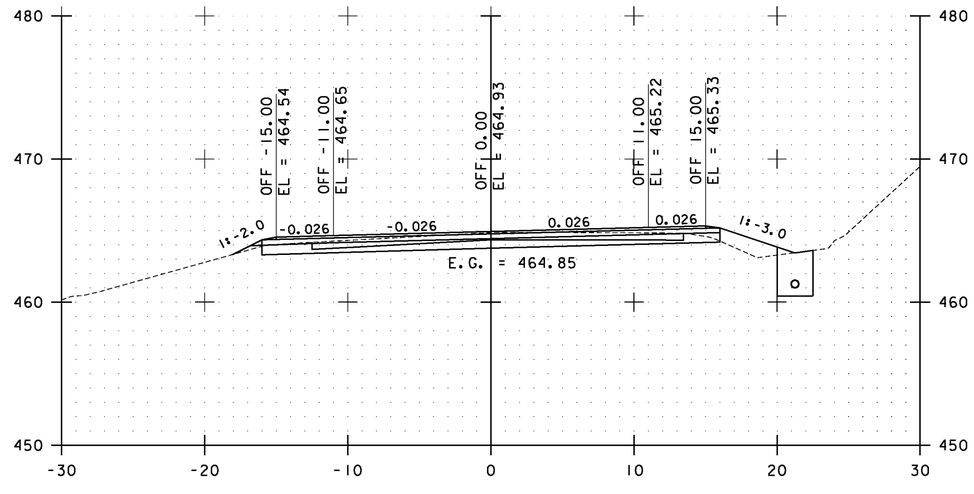
214+50.00



214+00.00



215+50.00



215+00.00

STA. 214+00.00 TO STA. 215+50.00

0 10 20
SCALE

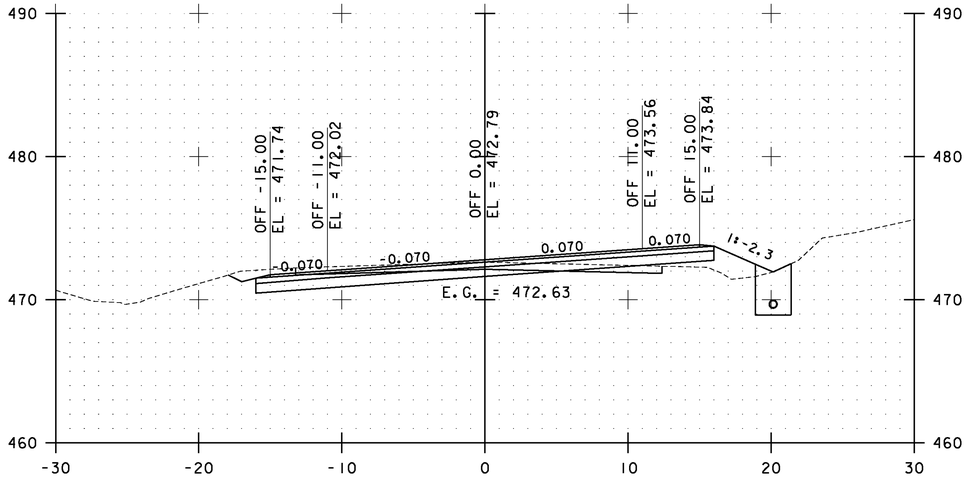
Stantec

ESSEX CROSS SECTIONS SHEET #102

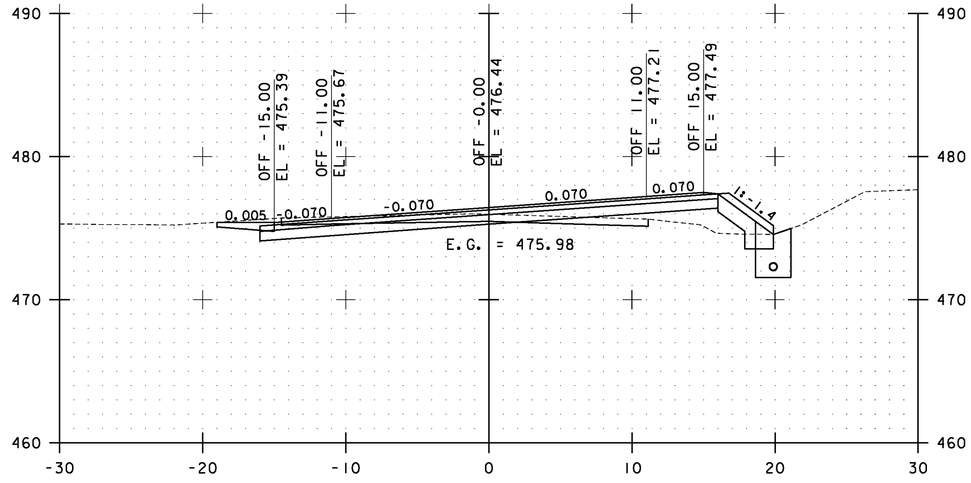
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs102.i

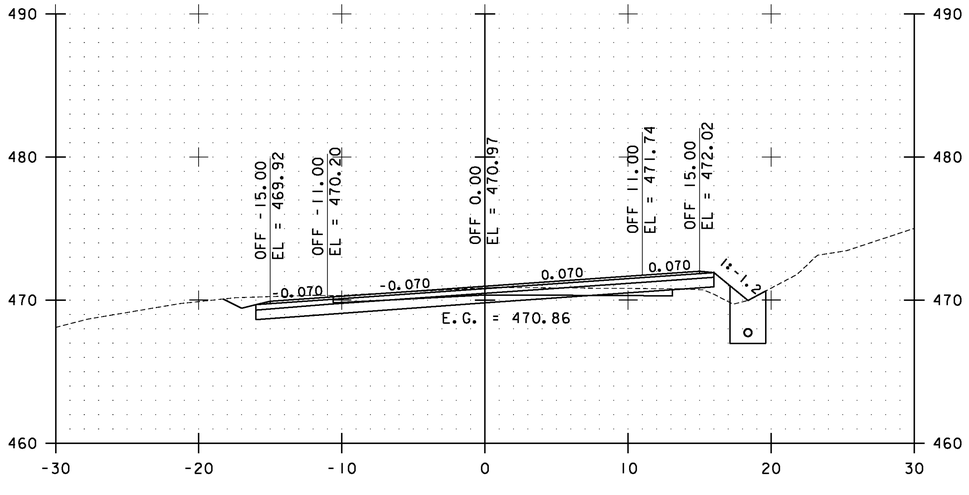
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 193 OF 239



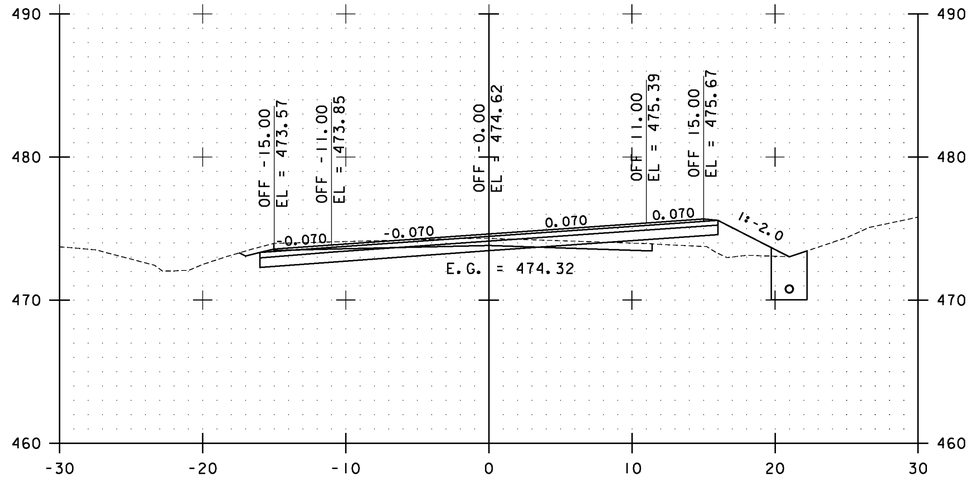
216+50.00



217+50.00



216+00.00



217+00.00

STA. 216+00.00 TO STA. 217+50.00

0 10 20
SCALE

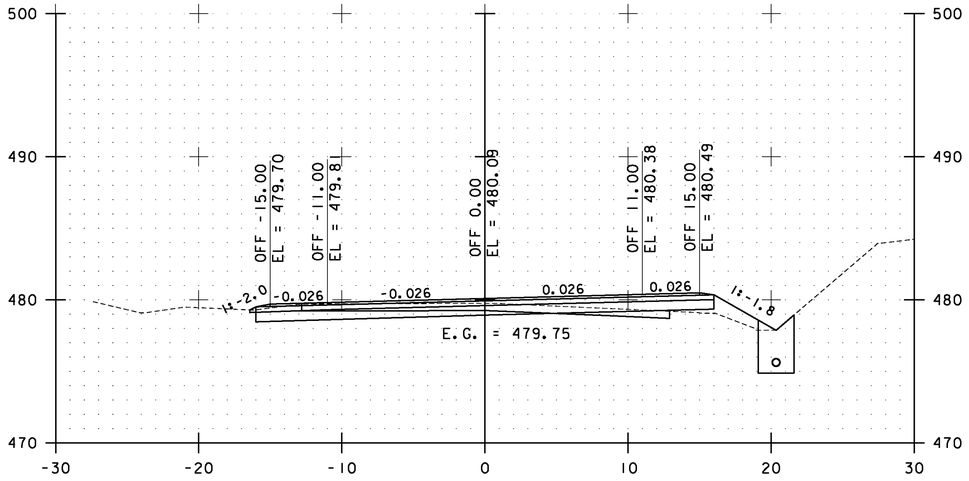
Stantec

ESSEX CROSS SECTIONS SHEET #103

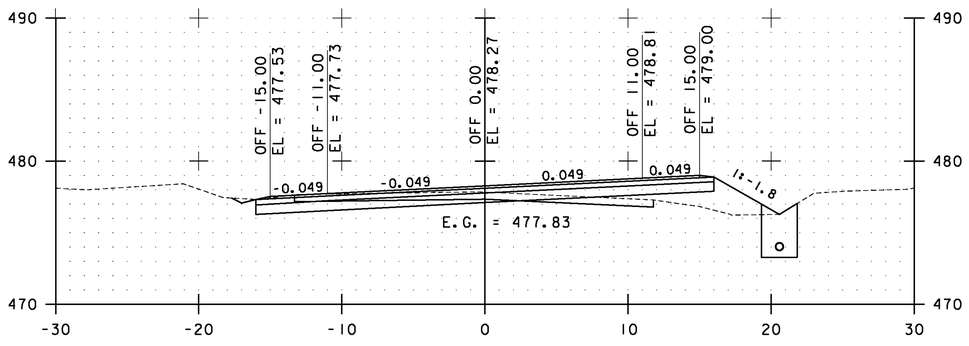
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs103.i

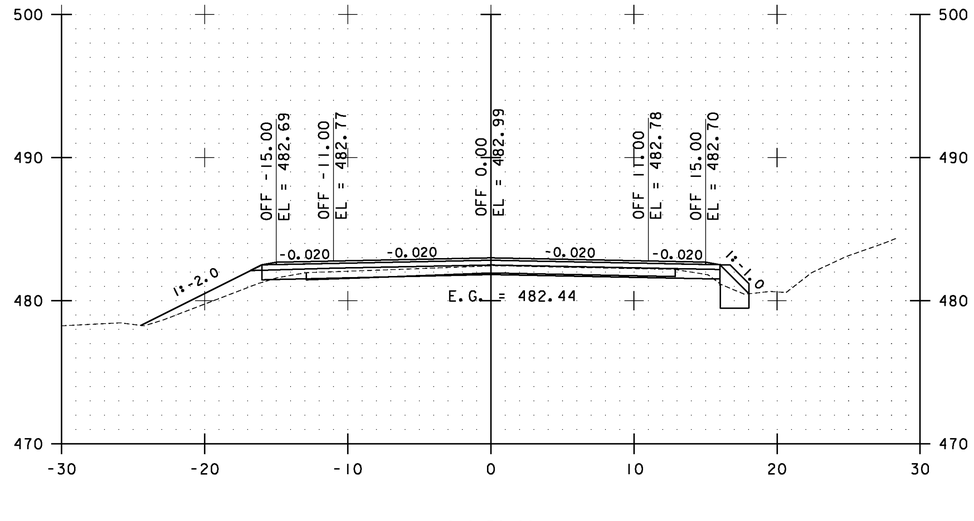
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 194 OF 239



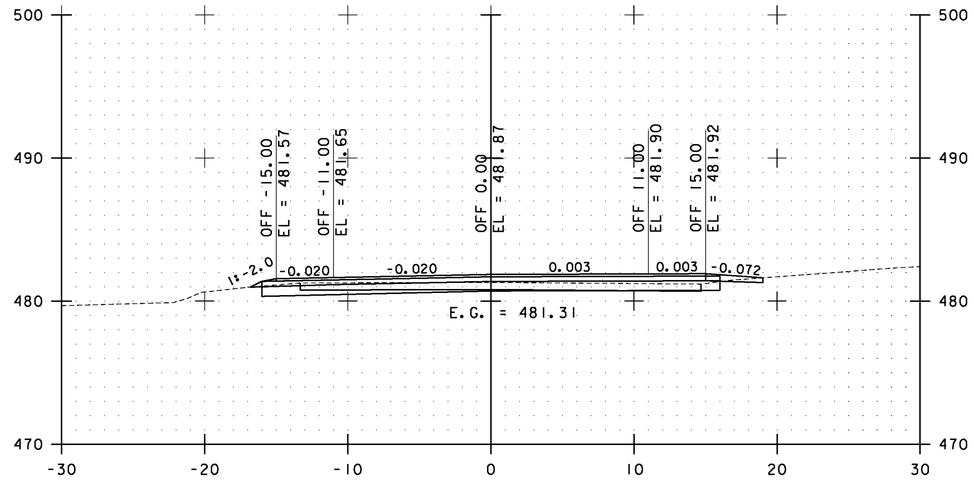
218+50.00



218+00.00



219+50.00



219+00.00

STA. 218+00.00 TO STA. 219+50.00

SCALE 0 10 20

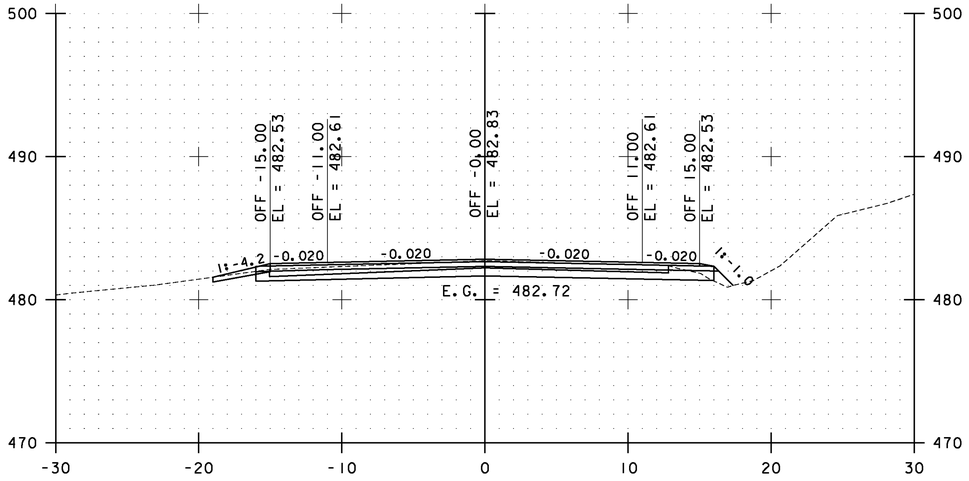
Stantec

ESSEX CROSS SECTIONS SHEET #104

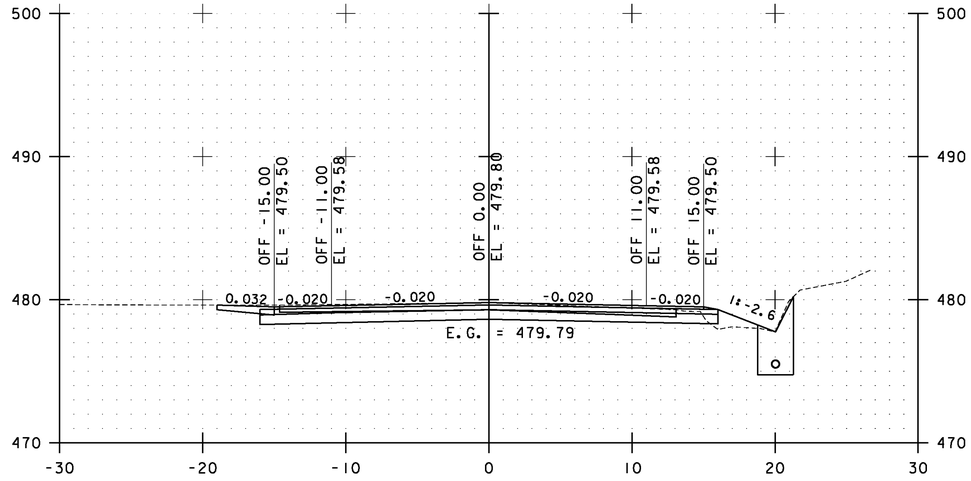
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs104.i

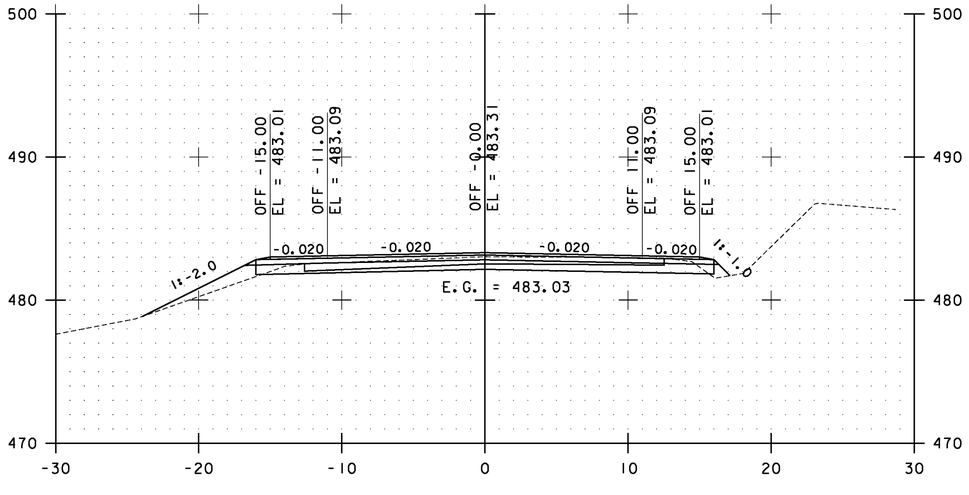
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 195 OF 239



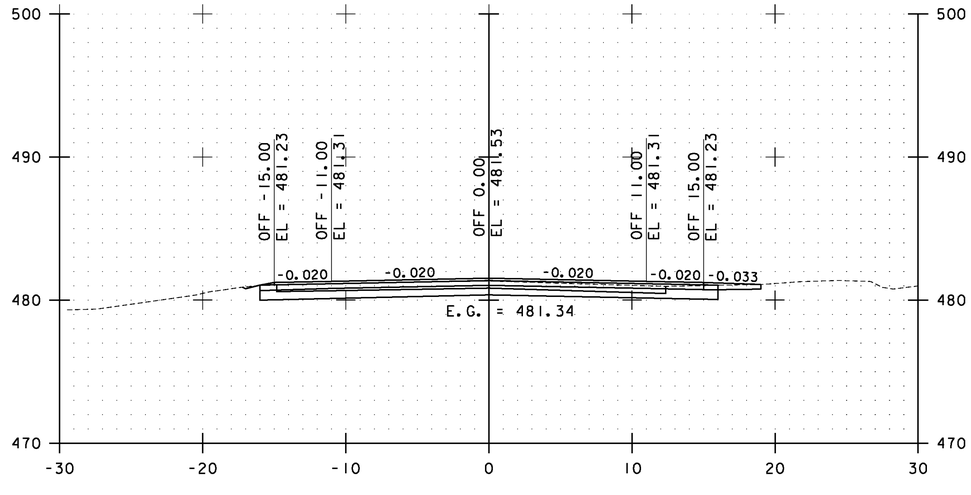
220+50.00



221+50.00



220+00.00



221+00.00

STA. 220+00.00 TO STA. 221+50.00

0 10 20
SCALE

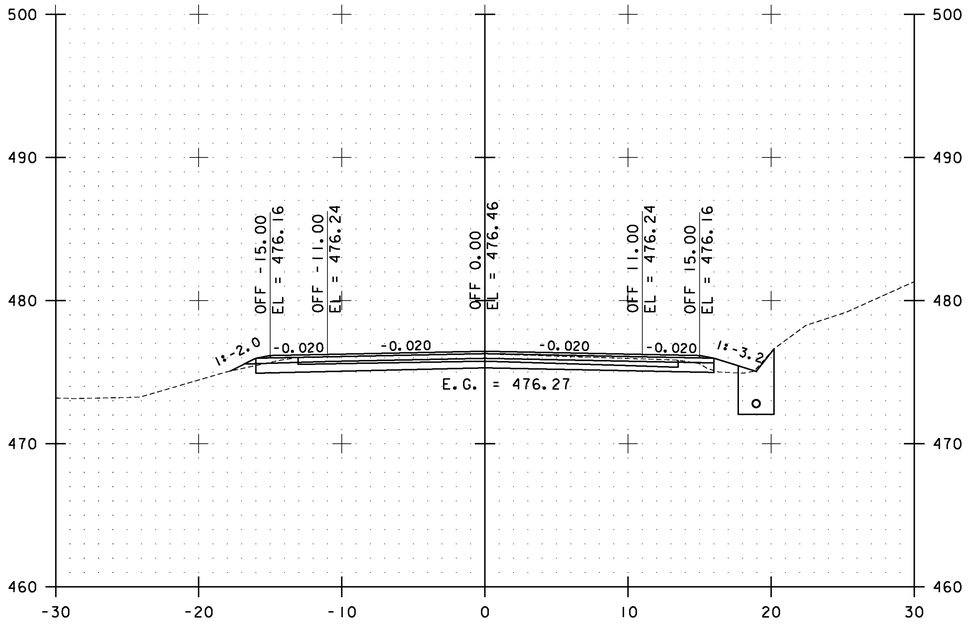
Stantec

ESSEX CROSS SECTIONS SHEET #105

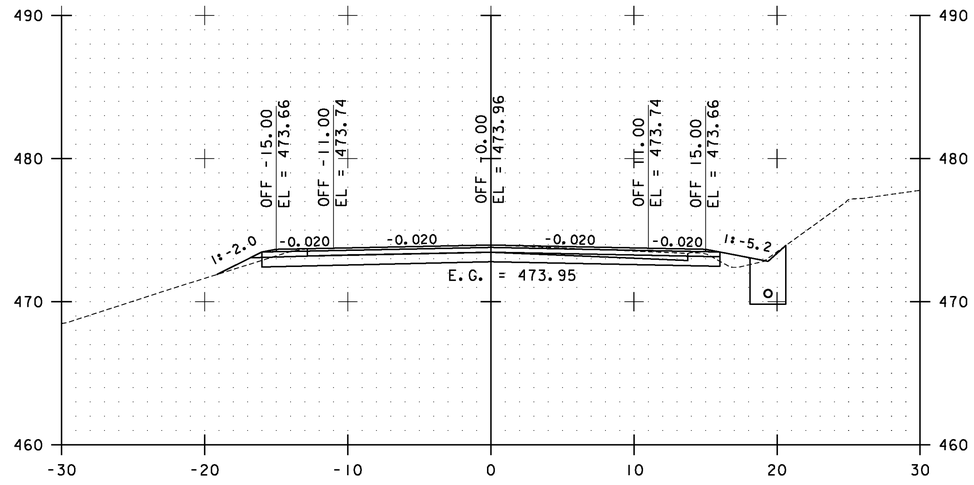
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs105.i

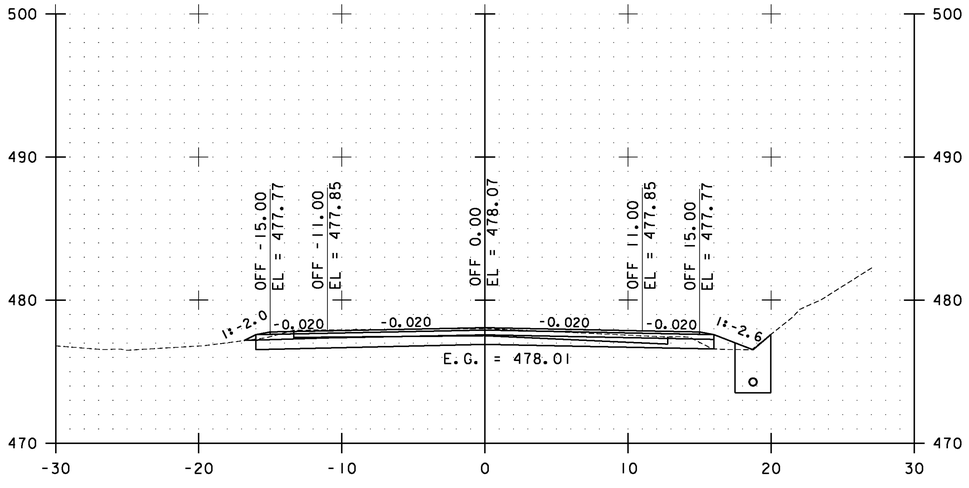
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 196 OF 239



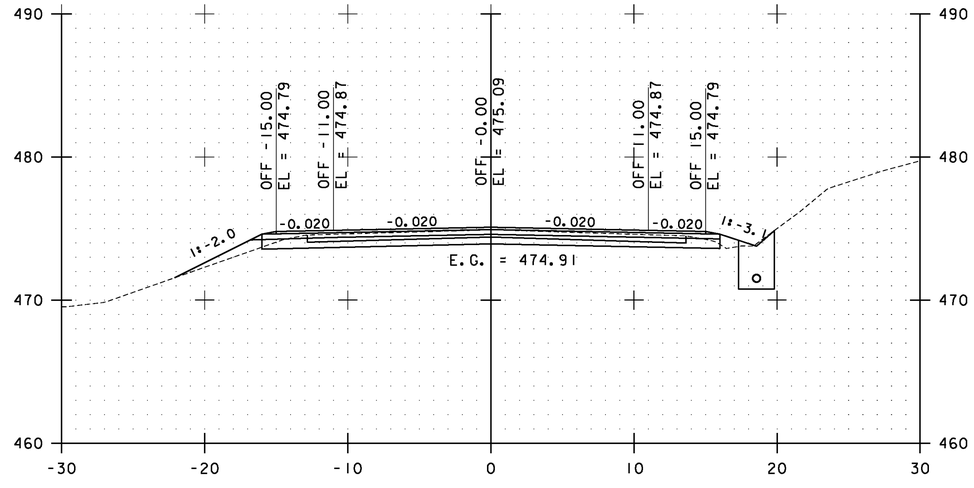
222+50.00



223+50.00



222+00.00



223+00.00

STA. 222+00.00 TO STA. 223+50.00

0 10 20
SCALE

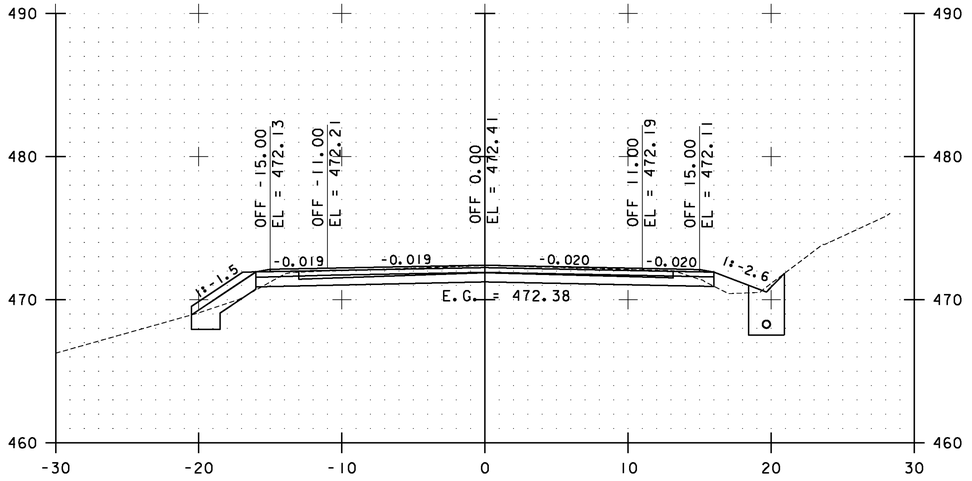
Stantec

ESSEX CROSS SECTIONS SHEET #106

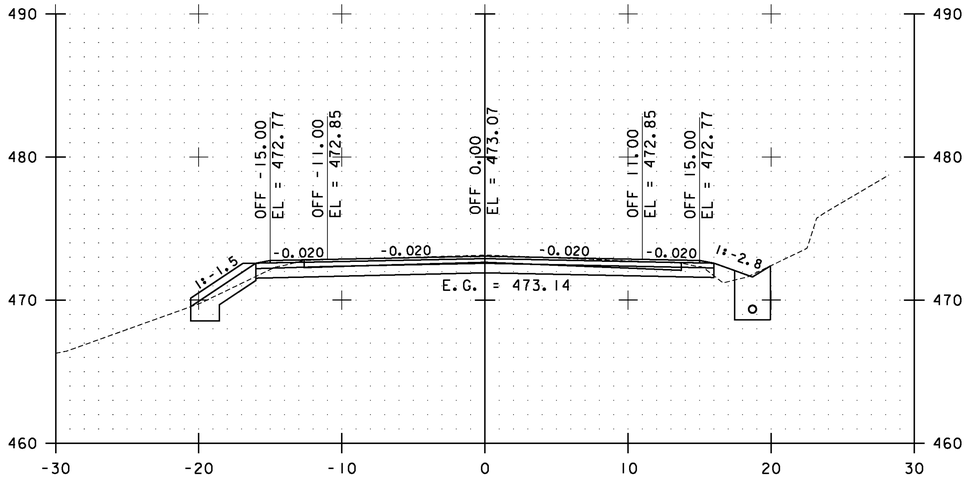
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs106.i

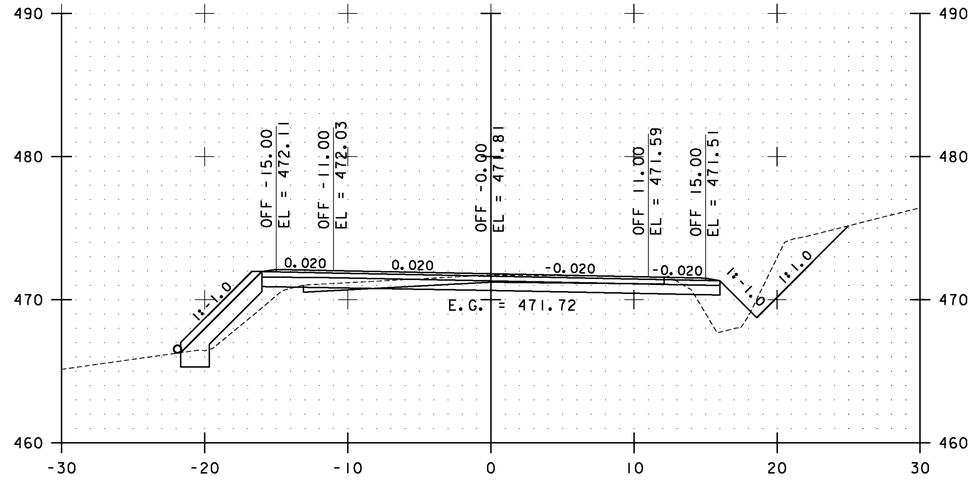
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 197 OF 239



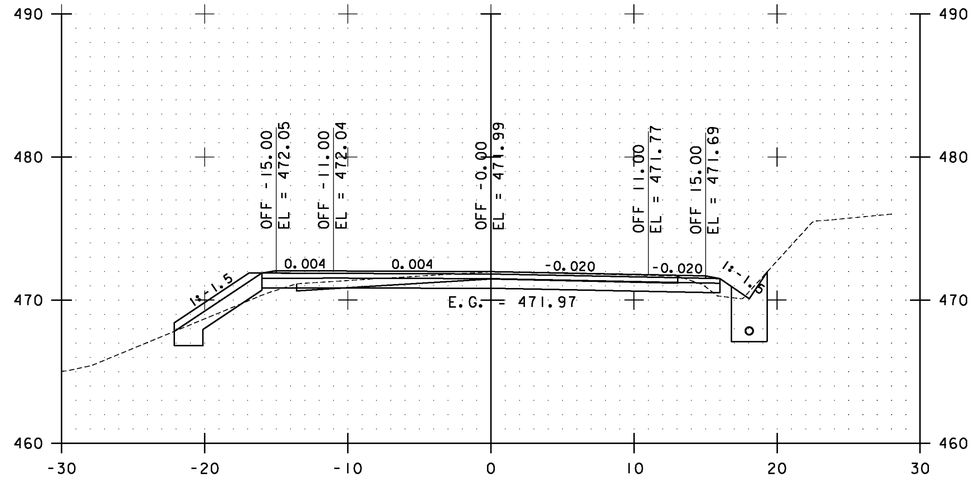
224+50.00



224+00.00



225+50.00



225+00.00

STA. 224+00.00 TO STA. 225+50.00

0 10 20
SCALE

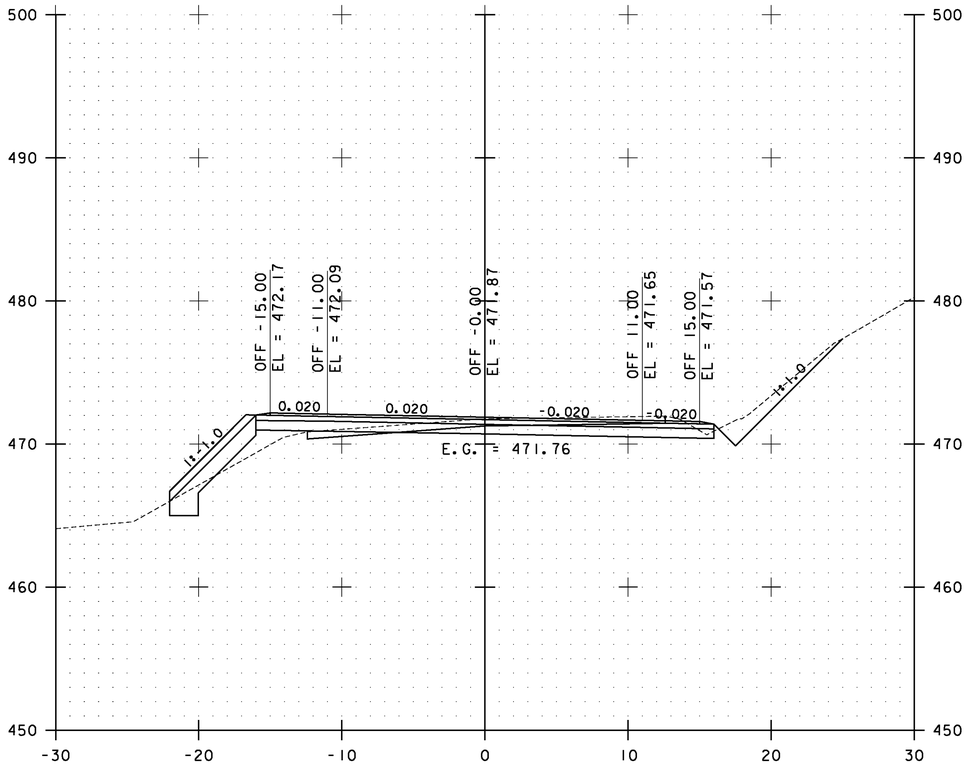
Stantec

ESSEX CROSS SECTIONS SHEET #107

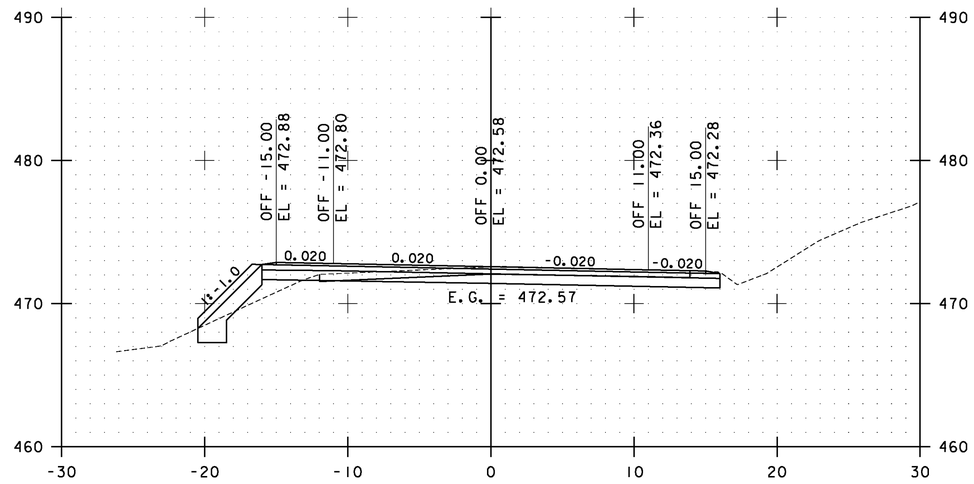
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs107.i

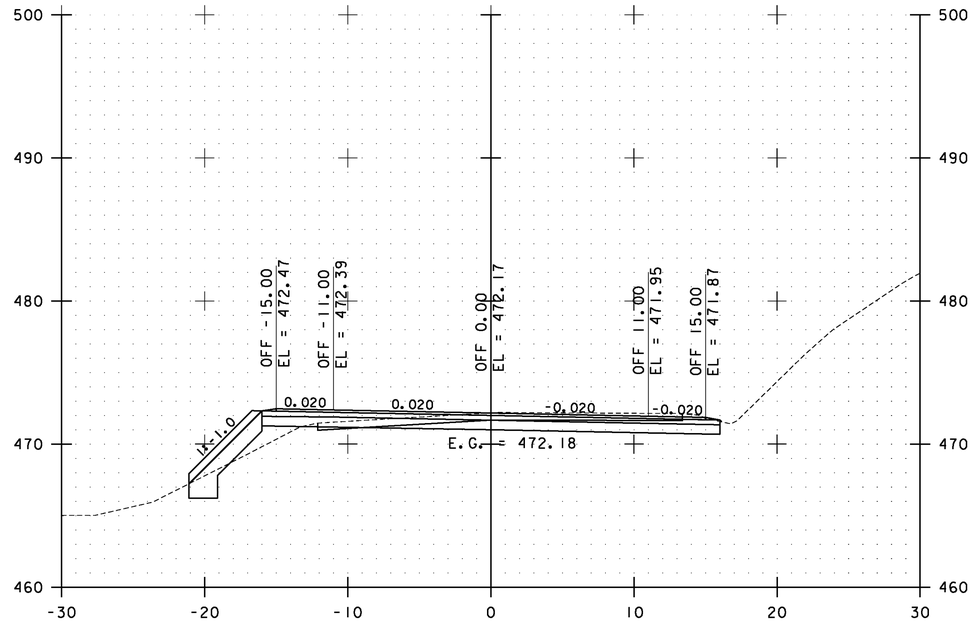
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 198 OF 239



226+00.00



227+00.00



226+50.00

STA. 226+00.00 TO STA. 227+00.00

0 10 20
SCALE

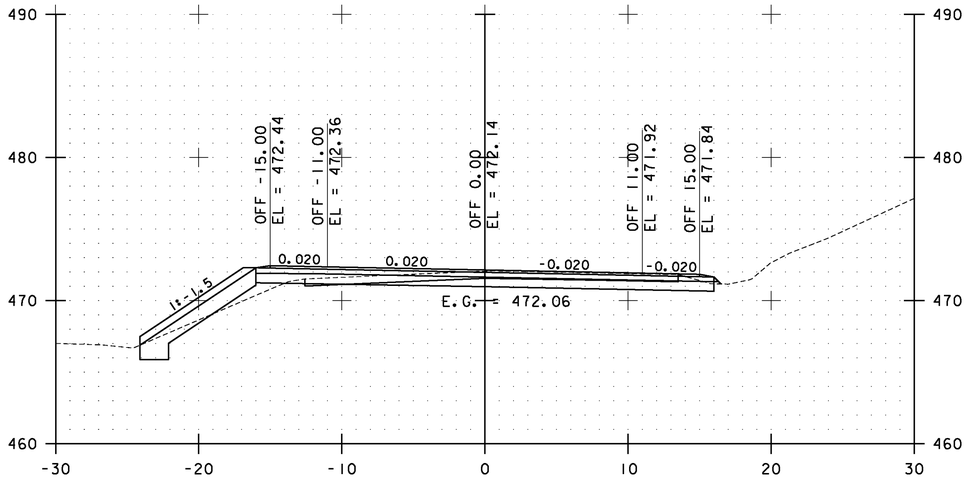
Stantec

ESSEX CROSS SECTIONS SHEET #108

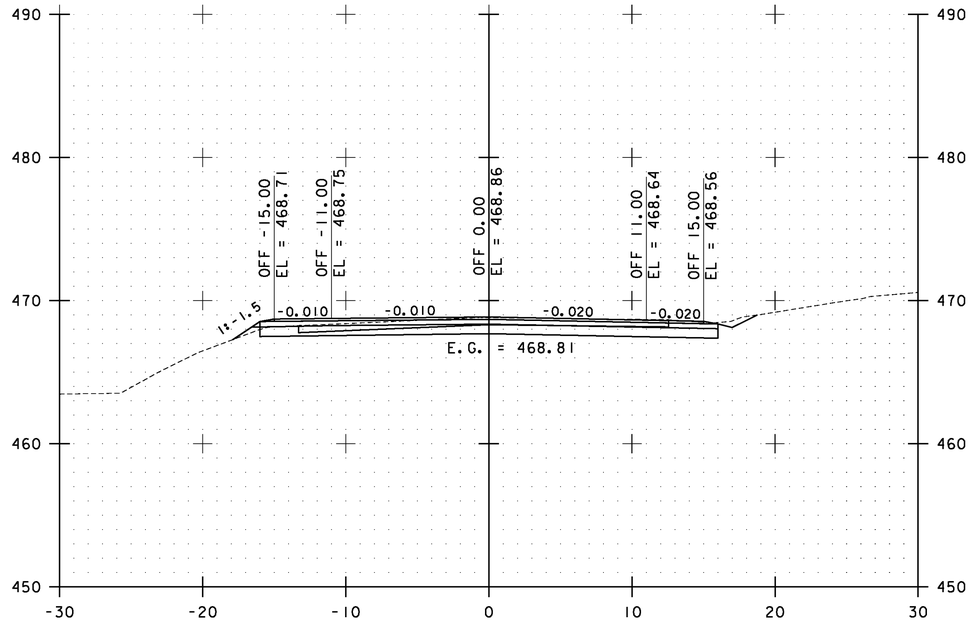
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs108.i

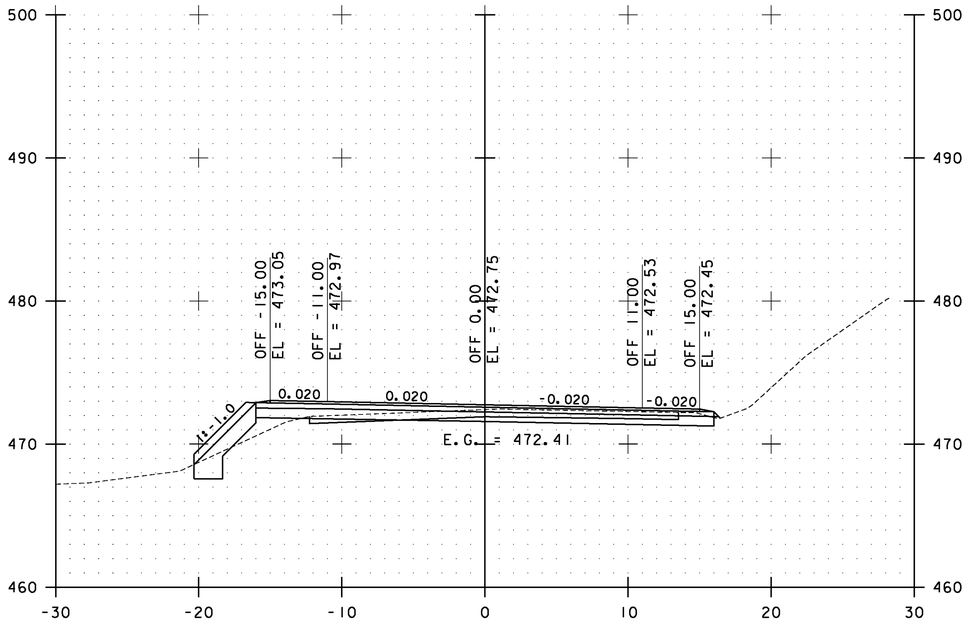
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 199 OF 239



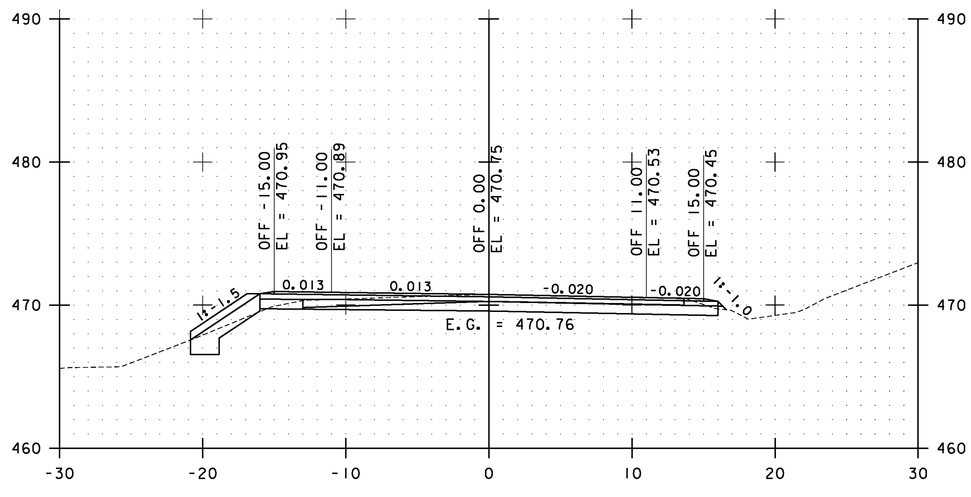
228+00.00



229+00.00



227+50.00



228+50.00

STA. 227+50.00 TO STA. 229+00.00

0 10 20
SCALE

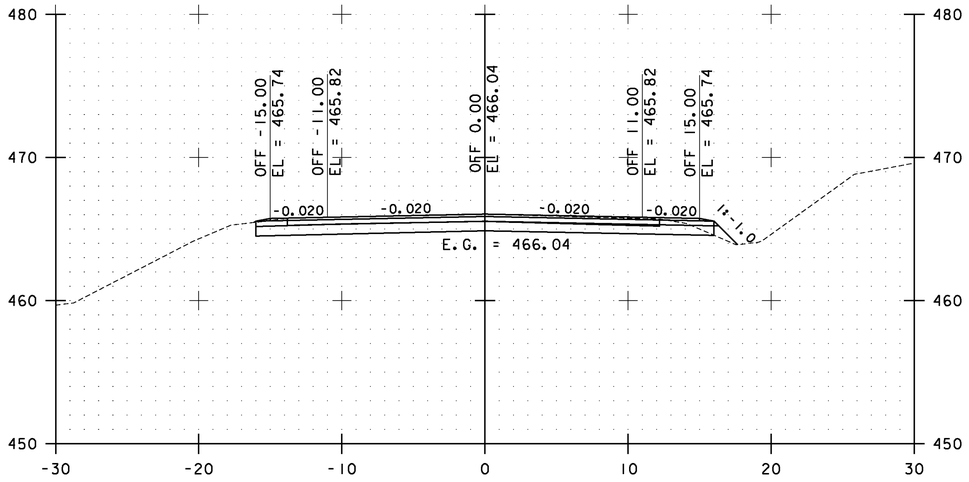
Stantec

ESSEX CROSS SECTIONS SHEET #109

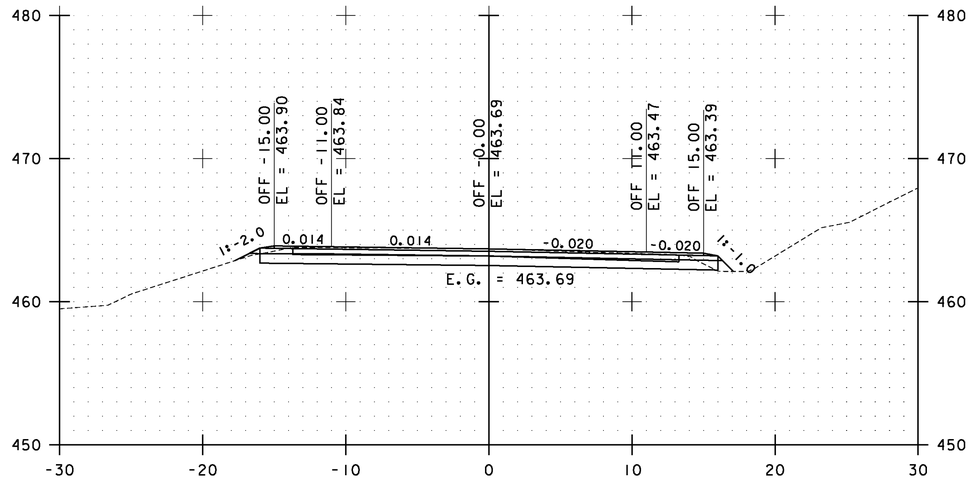
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs109.i

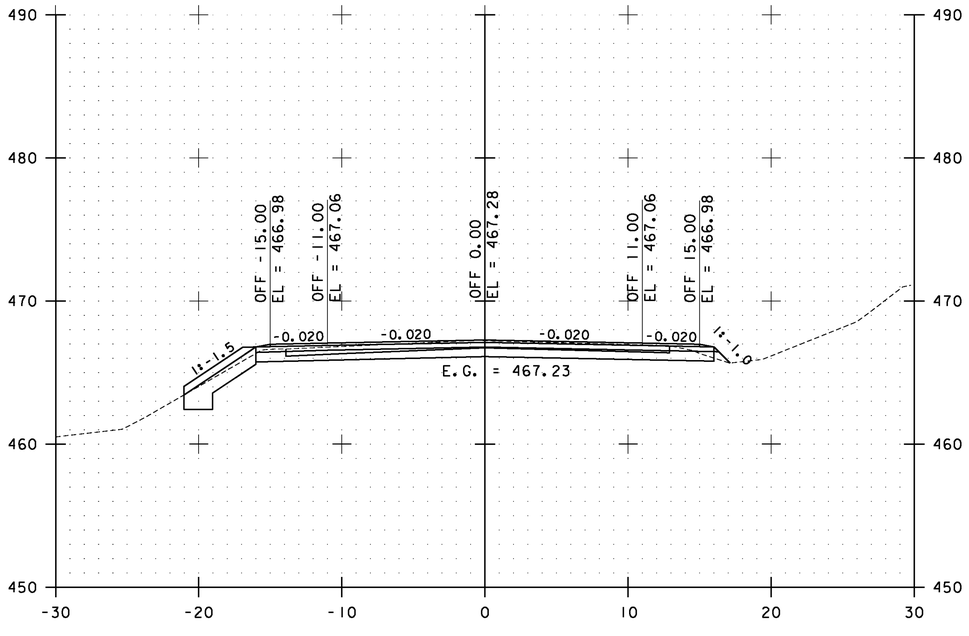
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 200 OF 239



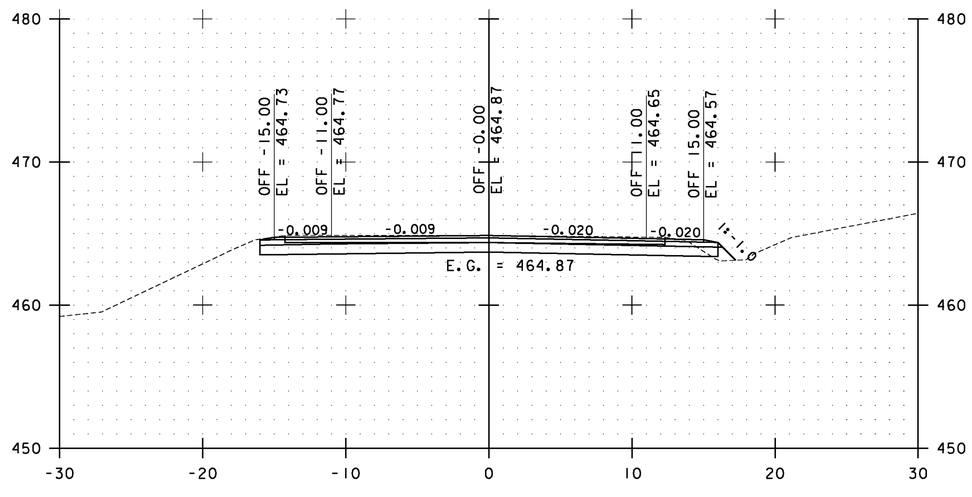
230+00.00



231+00.00



229+50.00



230+50.00

STA. 229+50.00 TO STA. 231+00.00

0 10 20
SCALE

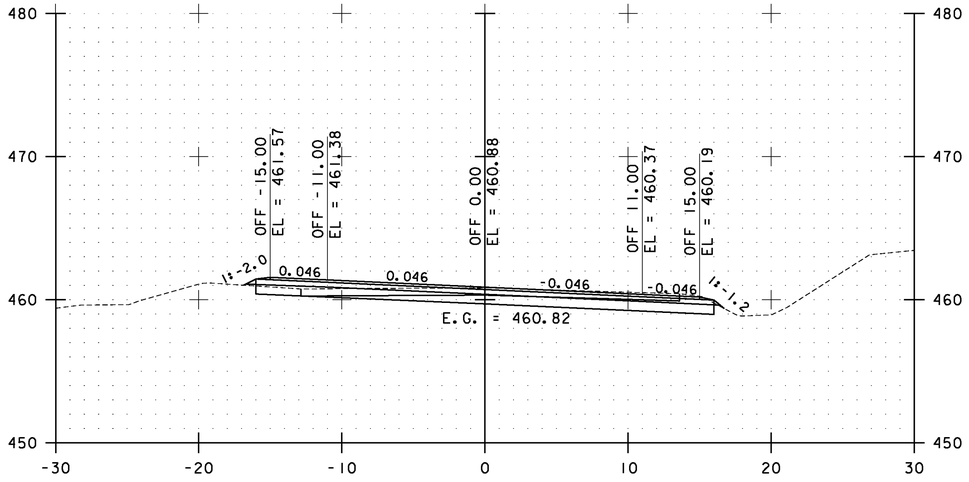
Stantec

ESSEX CROSS SECTIONS SHEET #110

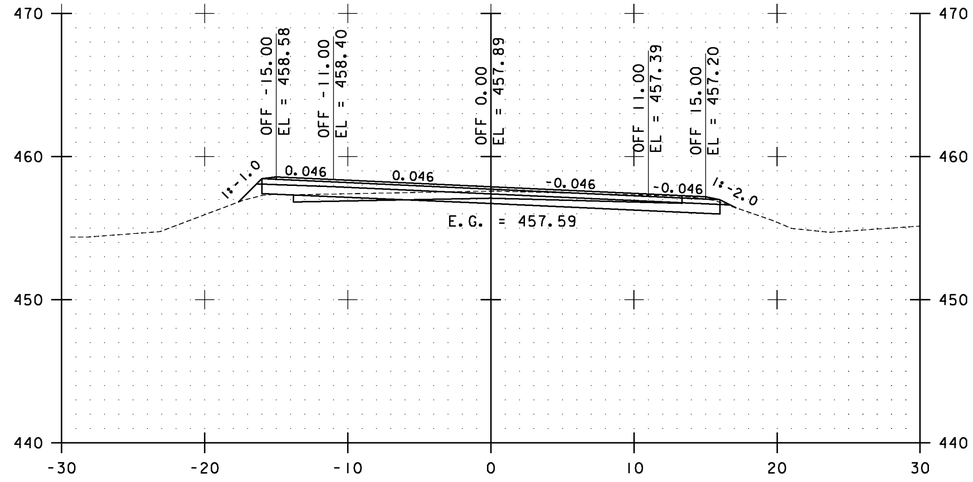
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs110.i

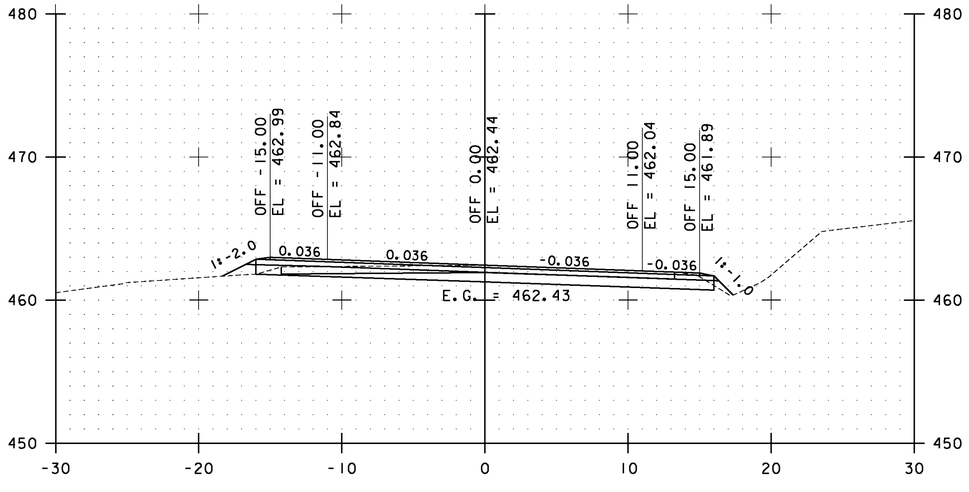
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 201 OF 239



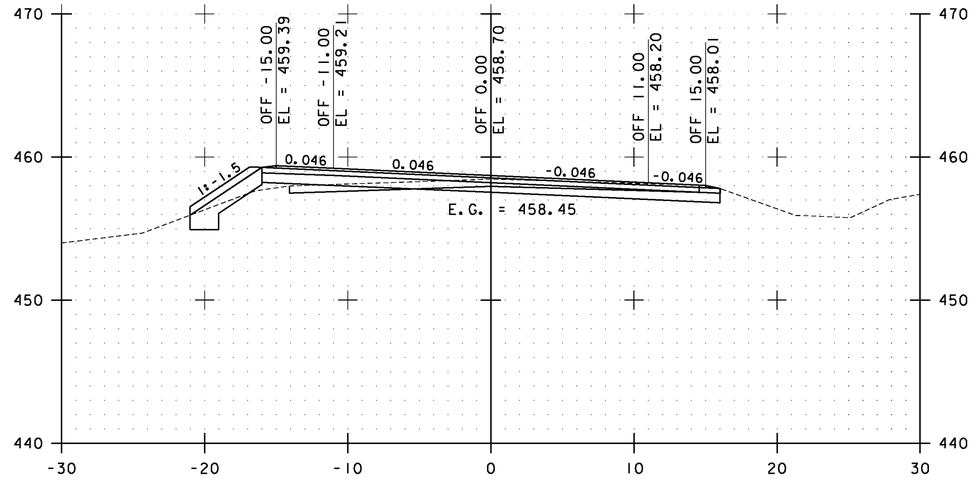
ESSEX 232+00.00



WESTFORD 1+00.00



ESSEX 231+50.00



WESTFORD 0+50.00

ESSEX STA. 231+50.00 TO WESTFORD STA. 1+00.00

0 10 20
SCALE

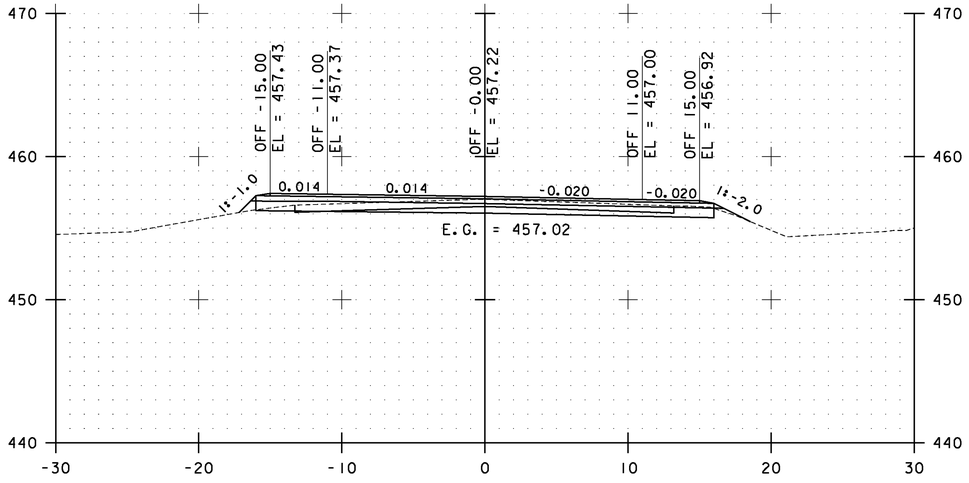
Stantec

ESSEX-WESTFORD CROSS SECTIONS SHEET #111

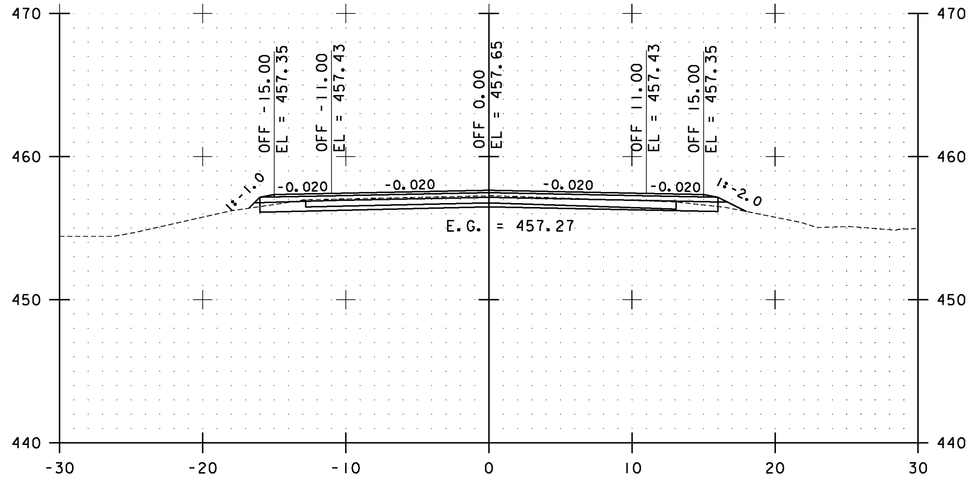
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs111.i

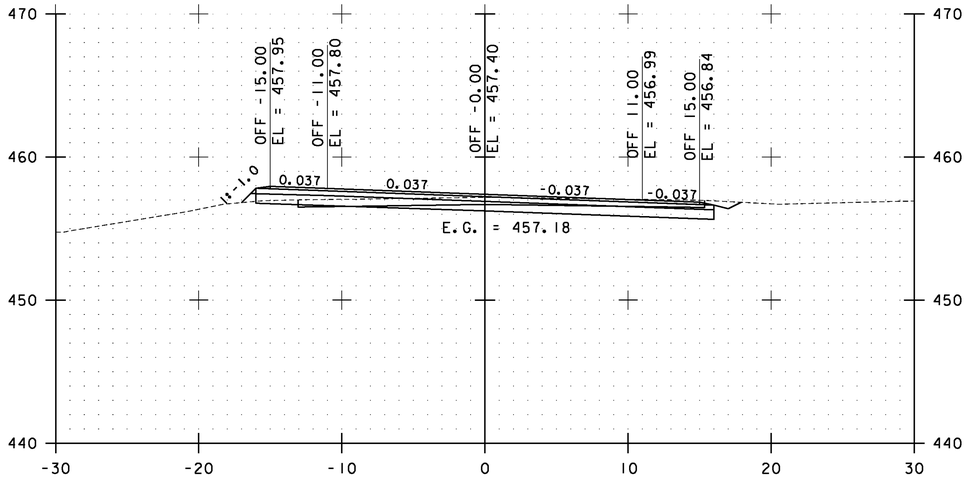
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 202 OF 239



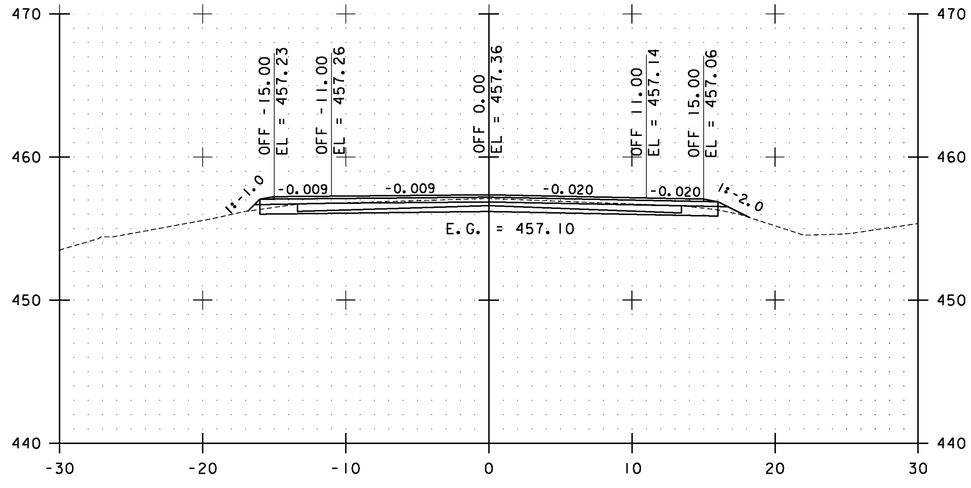
2+00.00



3+00.00



1+50.00



2+50.00

STA. 1+50.00 TO STA. 3+00.00

0 10 20
SCALE

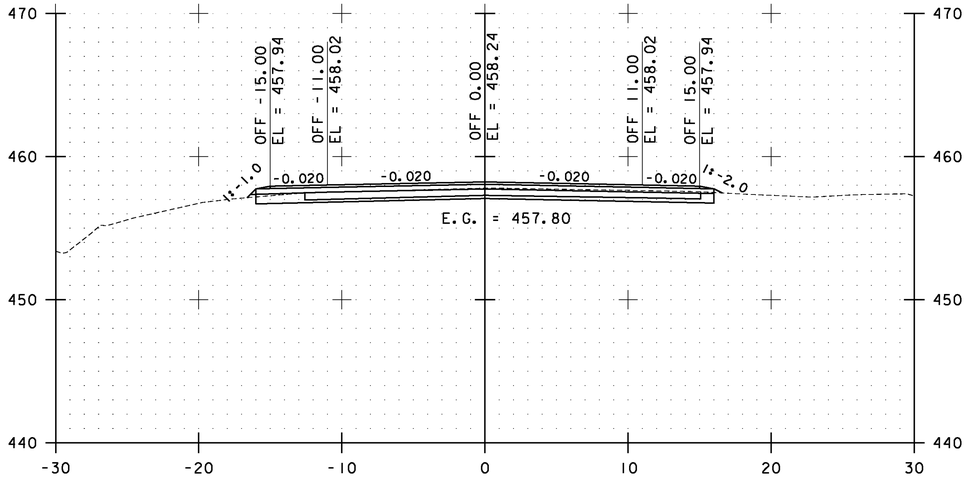
Stantec

WESTFORD CROSS SECTIONS SHEET #1

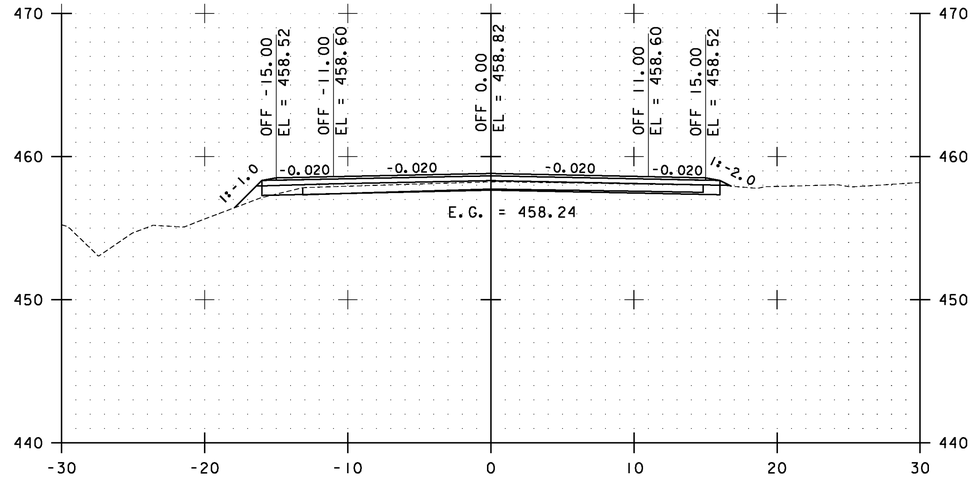
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs112.i

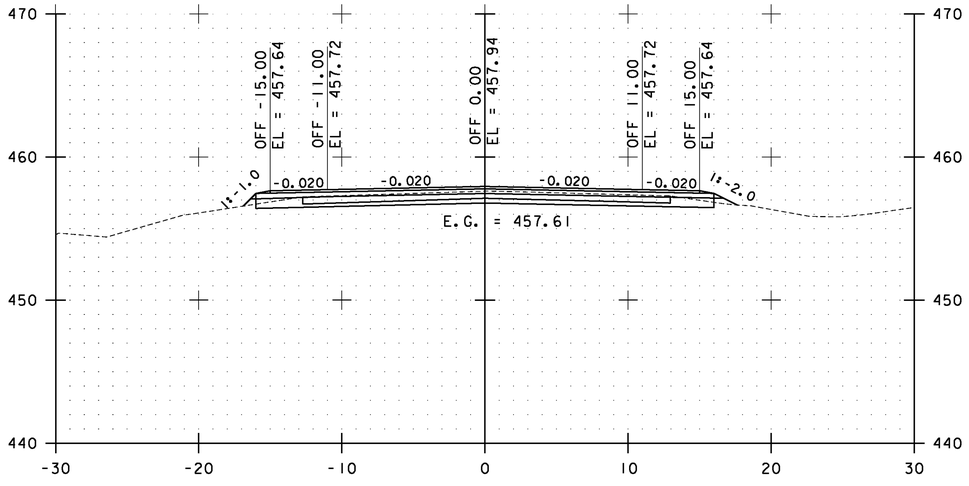
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 203 OF 239



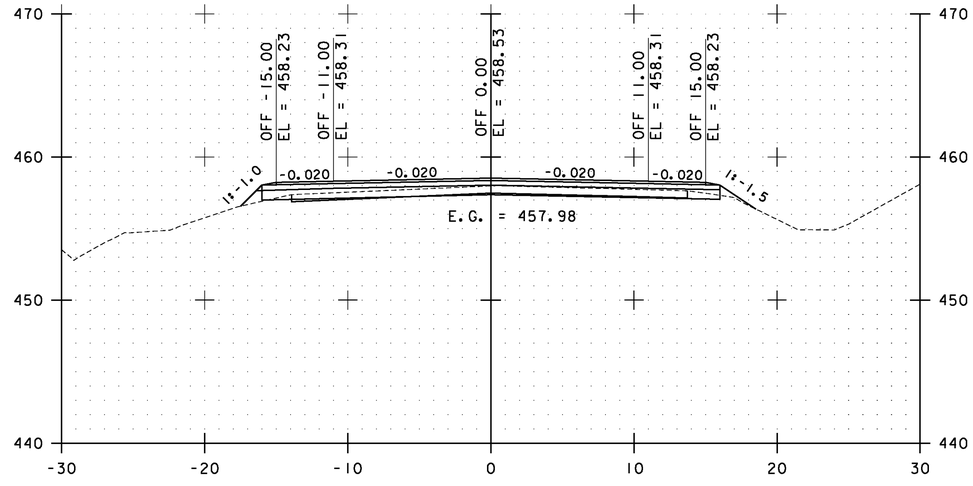
4+00.00



5+00.00



3+50.00



4+50.00

STA. 3+50.00 TO STA. 5+00.00

0 10 20
SCALE

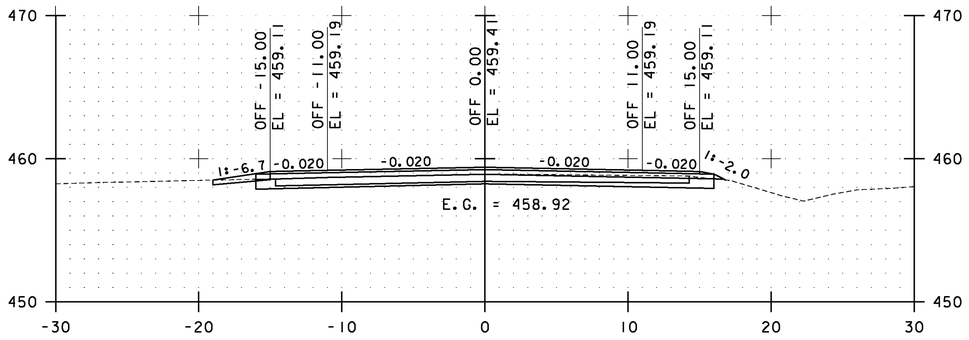
Stantec

WESTFORD CROSS SECTIONS SHEET #2

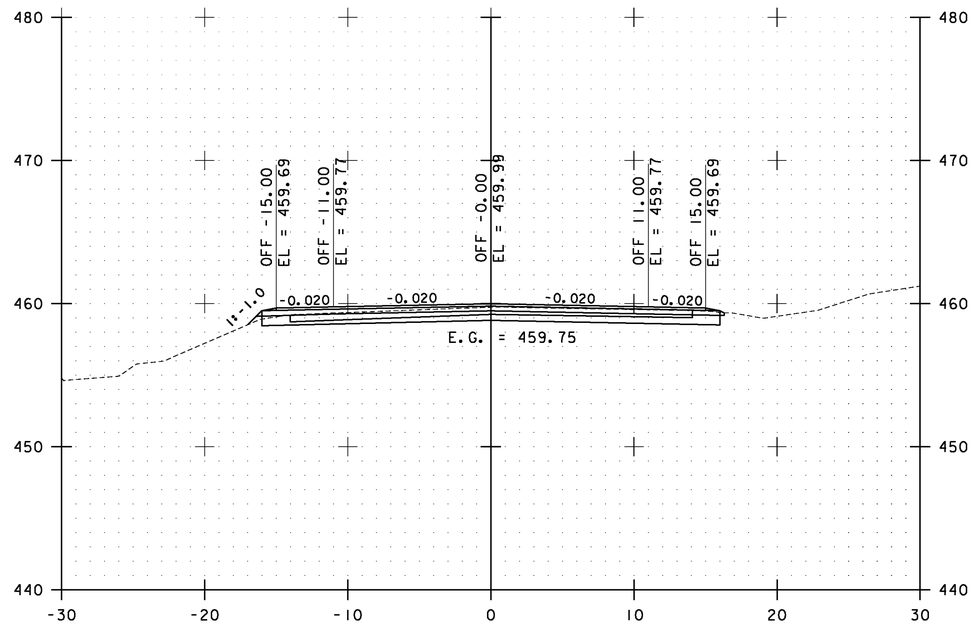
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs113.i

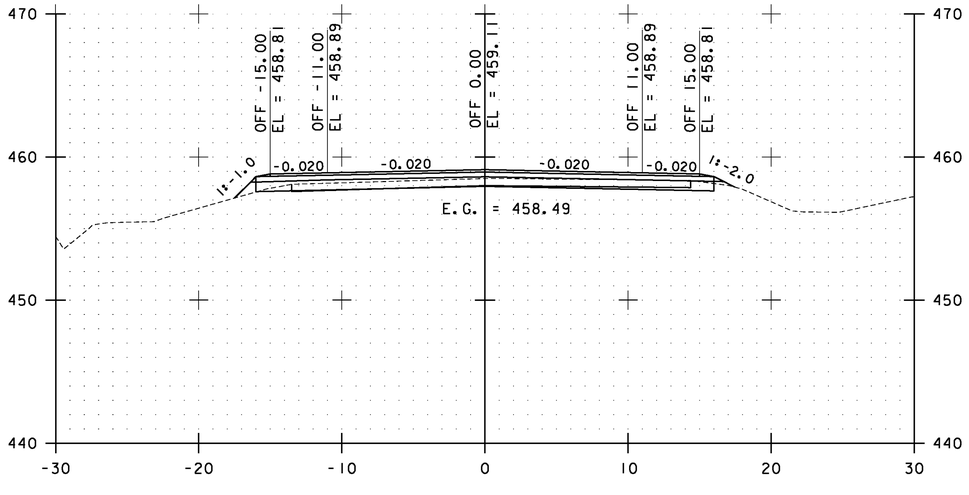
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 204 OF 239



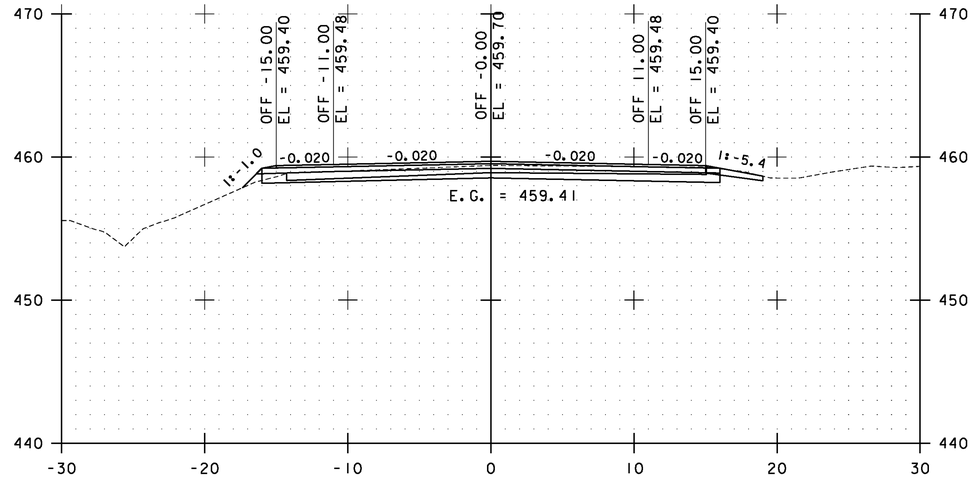
6+00.00



7+00.00



5+50.00



6+50.00

STA. 5+50.00 TO STA. 7+00.00

0 10 20
SCALE

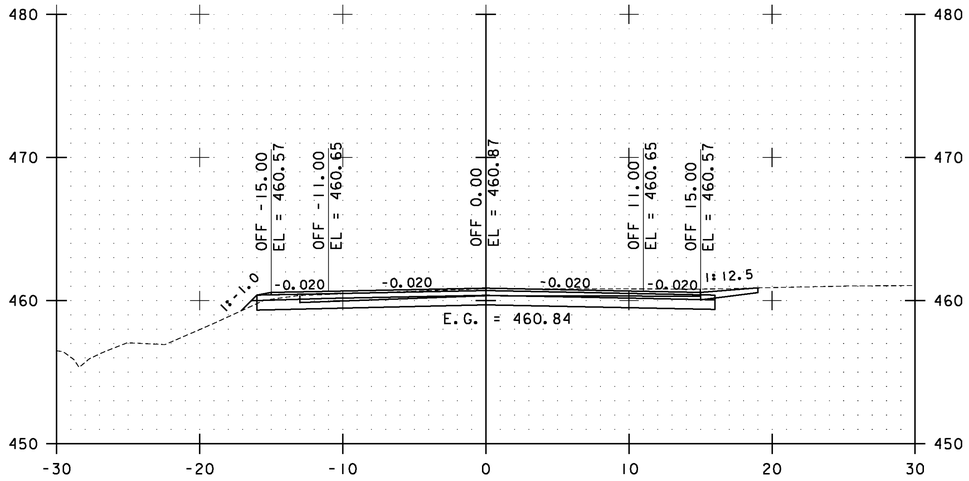
Stantec

WESTFORD CROSS SECTIONS SHEET #3

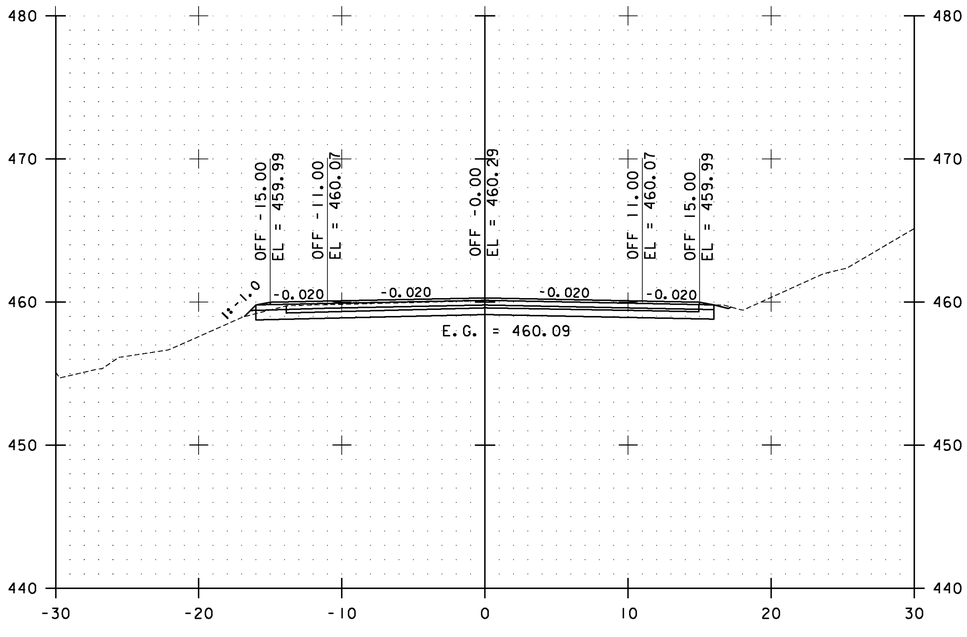
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs114.i

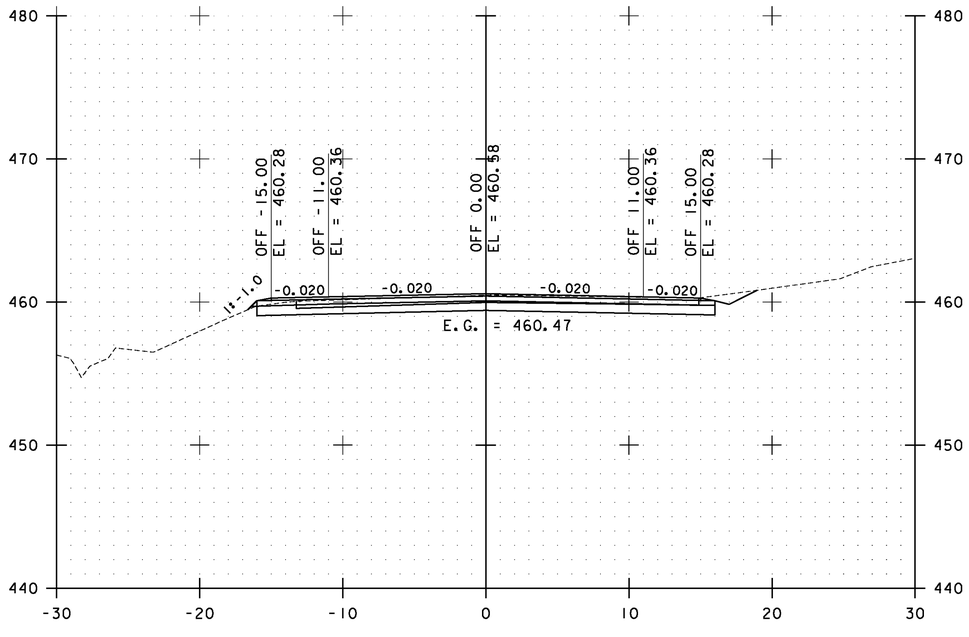
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 205 OF 239



8+50.00



7+50.00



8+00.00

STA. 7+50.00 TO STA. 8+50.00

0 10 20
SCALE

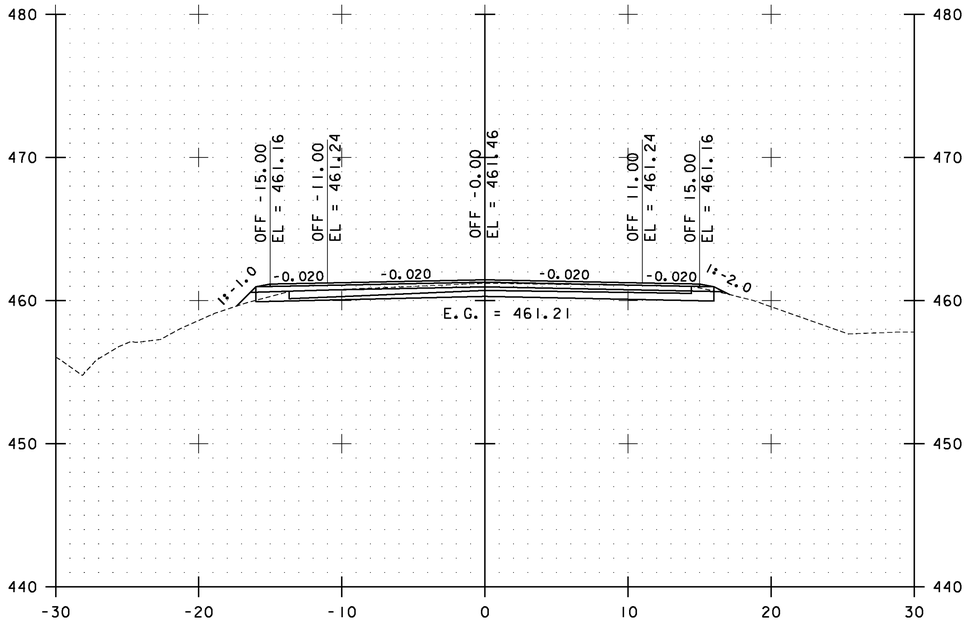
Stantec

WESTFORD CROSS SECTIONS SHEET #4

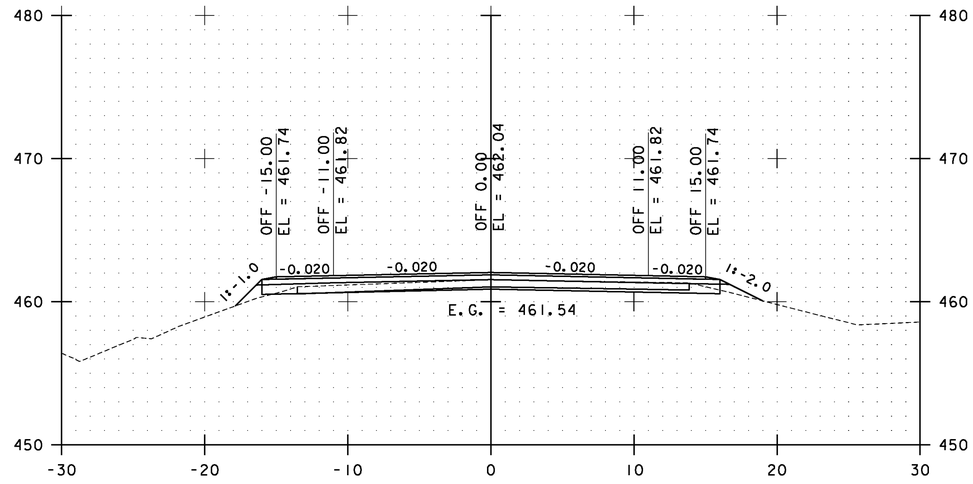
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs115.i

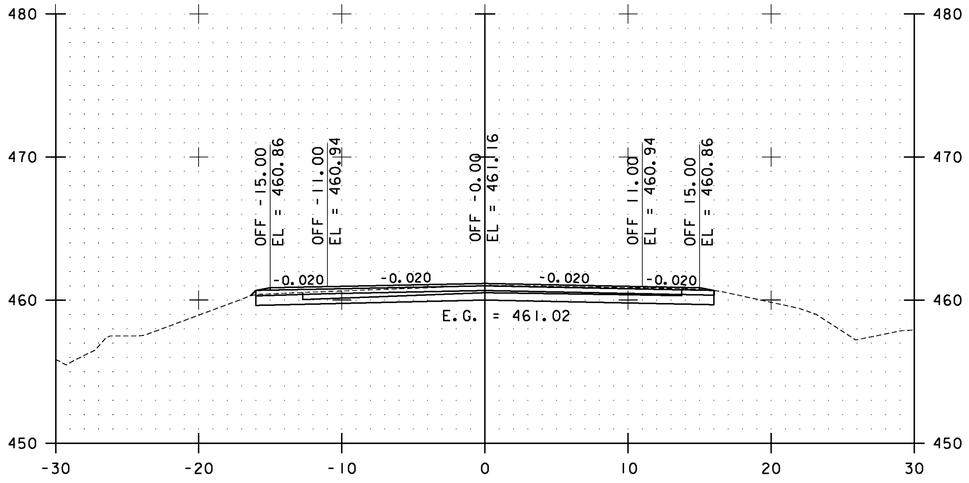
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 206 OF 239



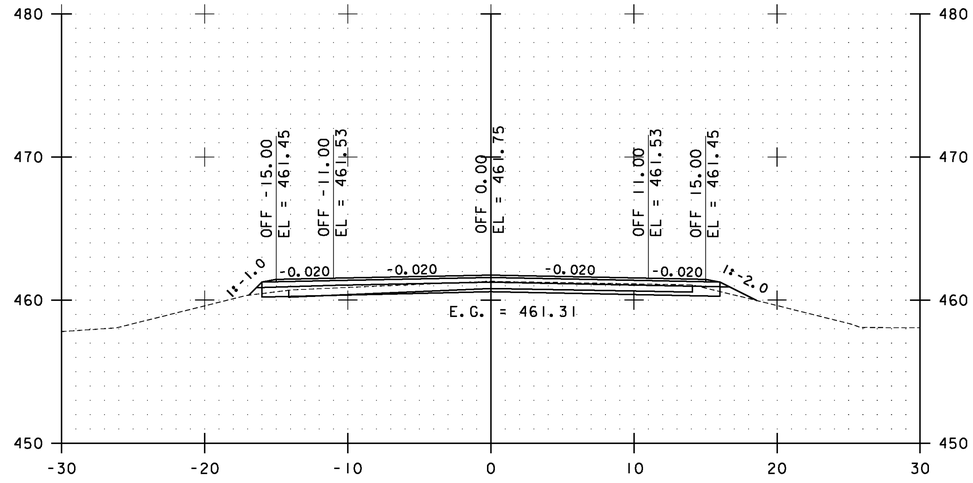
9+50.00



10+50.00



9+00.00



10+00.00

STA. 9+00.00 TO STA. 10+50.00

0 10 20
SCALE

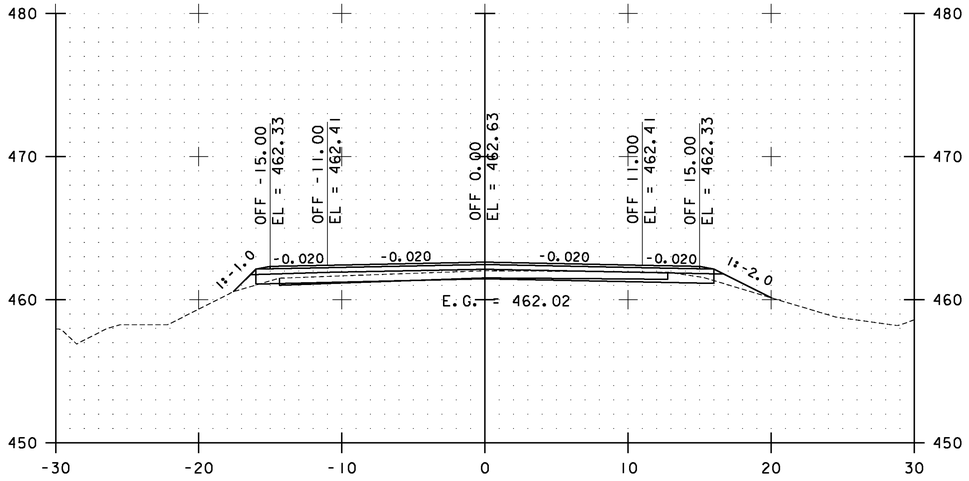
Stantec

WESTFORD CROSS SECTIONS SHEET #5

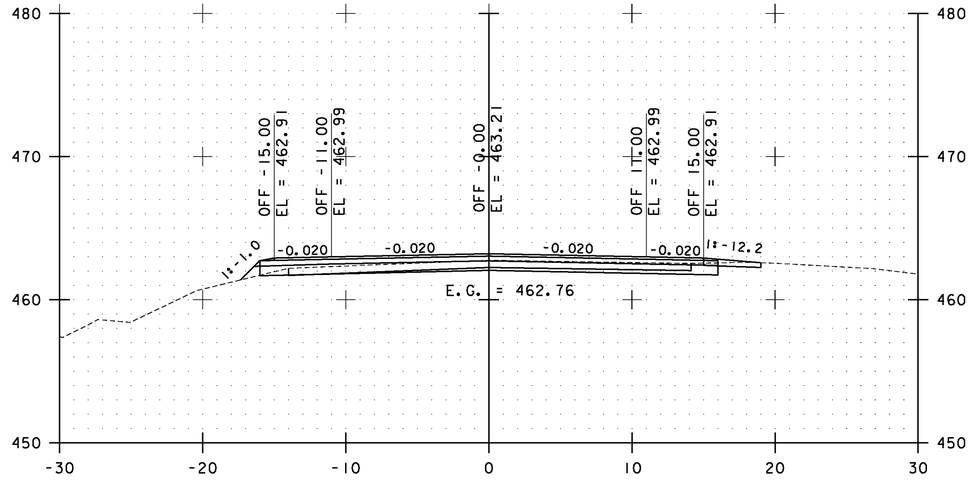
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs116.i

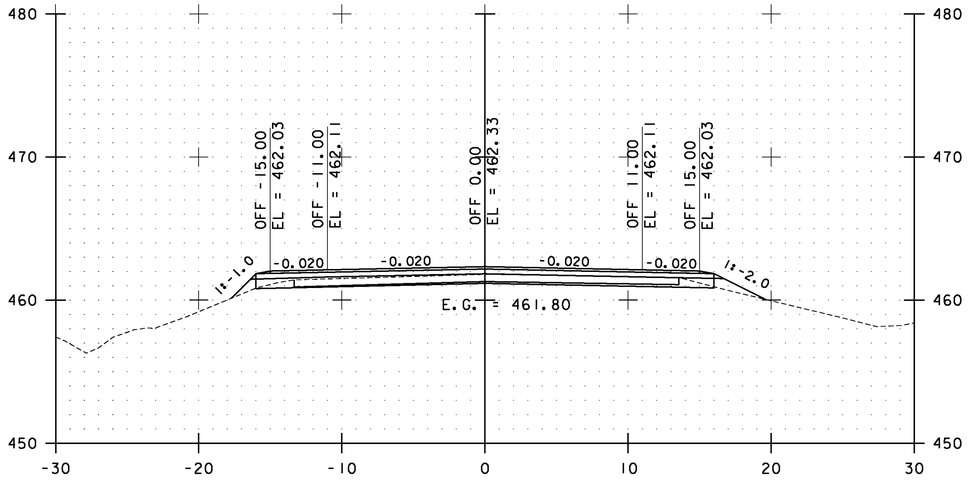
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 207 OF 239



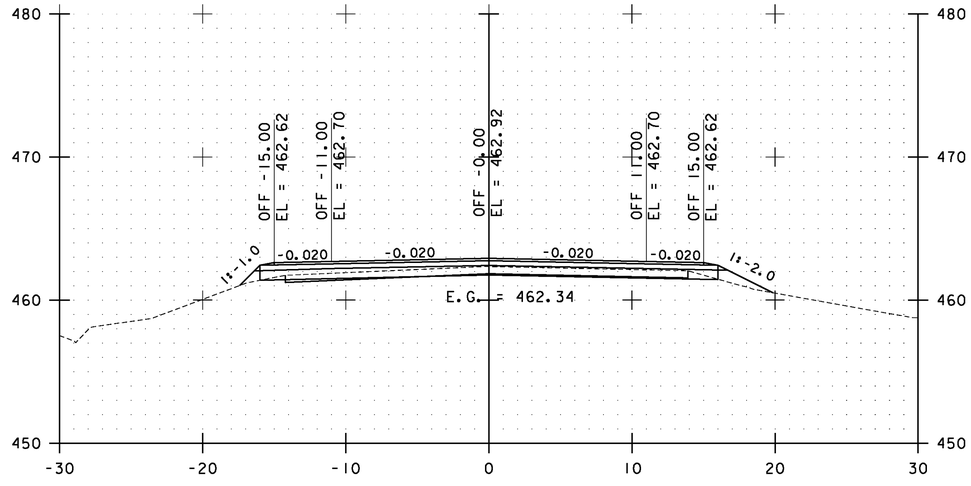
11+50.00



12+50.00



11+00.00



12+00.00

STA. 11+00.00 TO STA. 12+50.00

0 10 20

SCALE

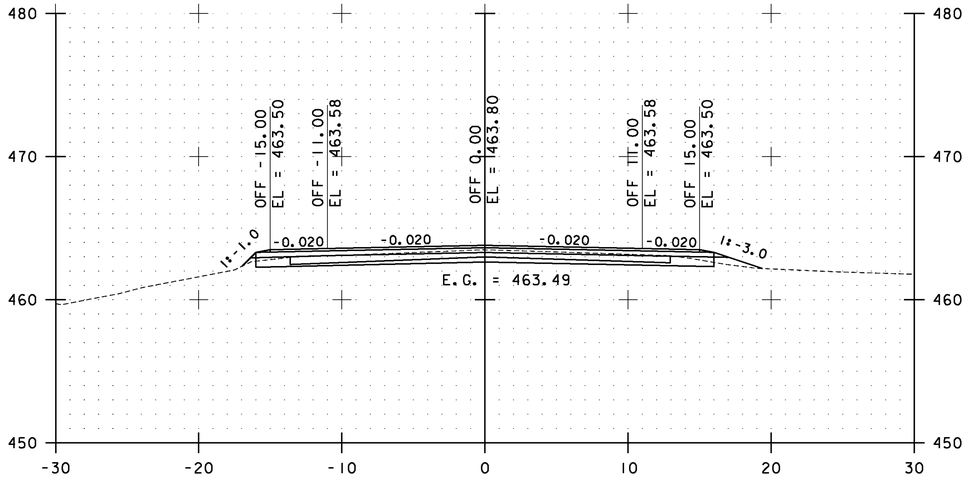
Stantec

WESTFORD CROSS SECTIONS SHEET #6

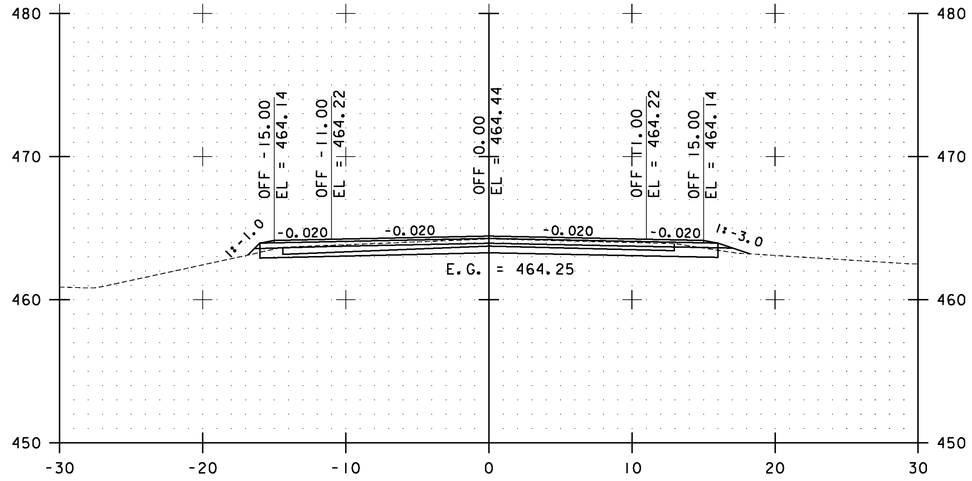
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs117.i

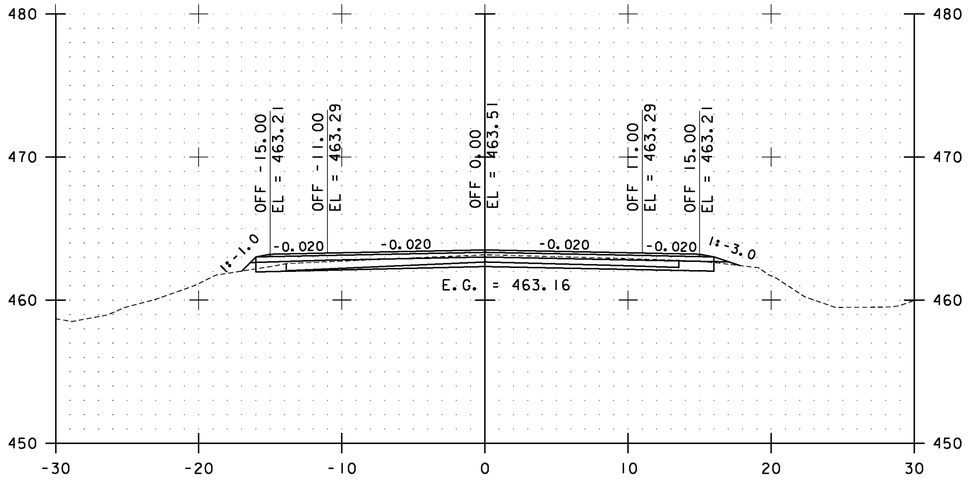
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 208 OF 239



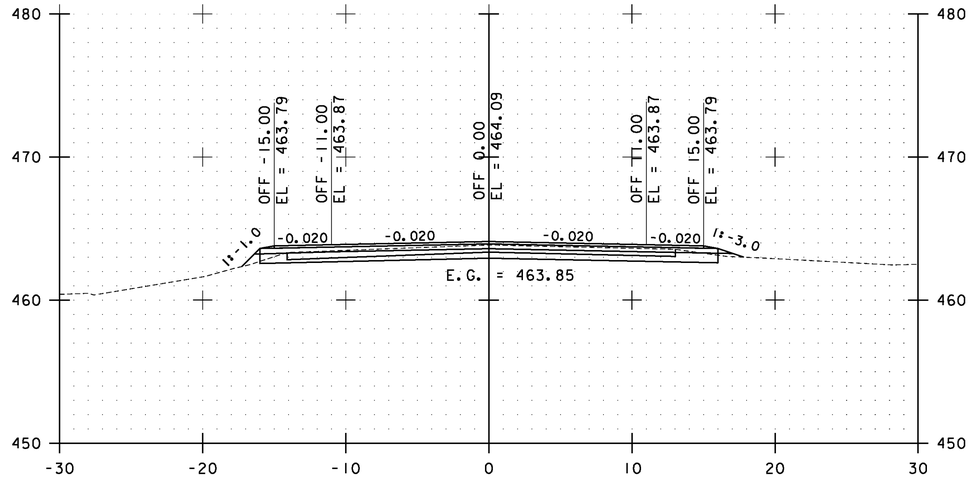
13+50.00



14+50.00



13+00.00



14+00.00

STA. 13+00.00 TO STA. 14+50.00

0 10 20
SCALE

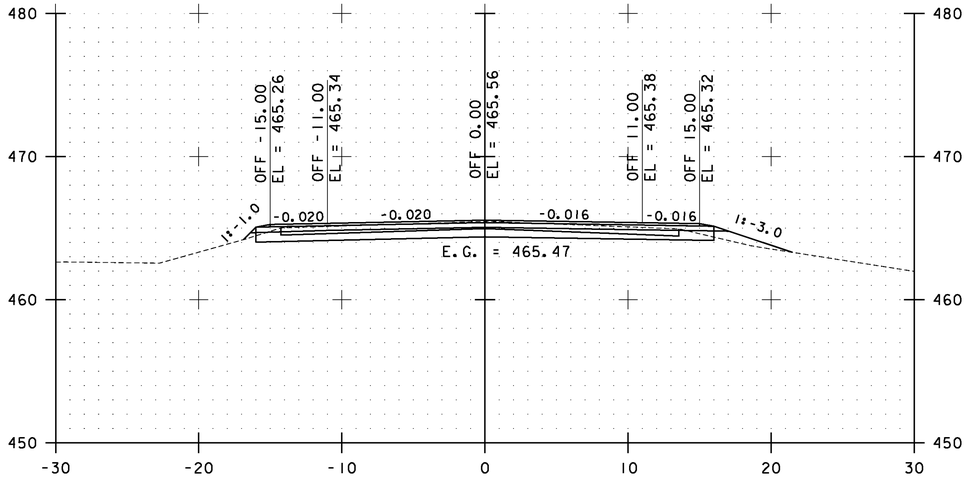
Stantec

WESTFORD CROSS SECTIONS SHEET #7

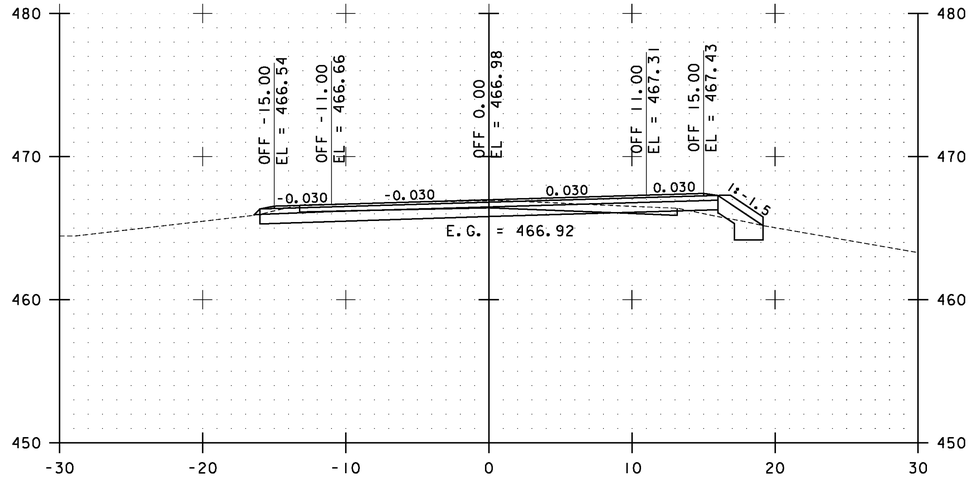
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs118.i

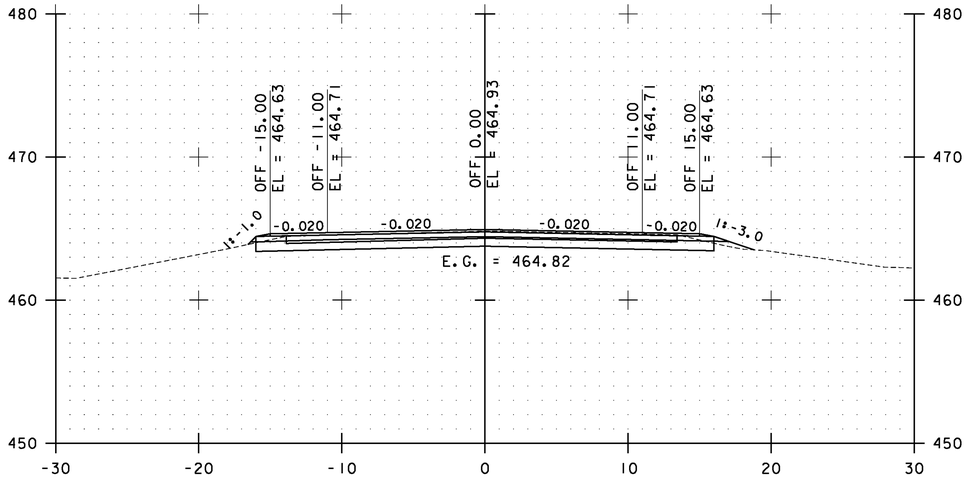
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 209 OF 239



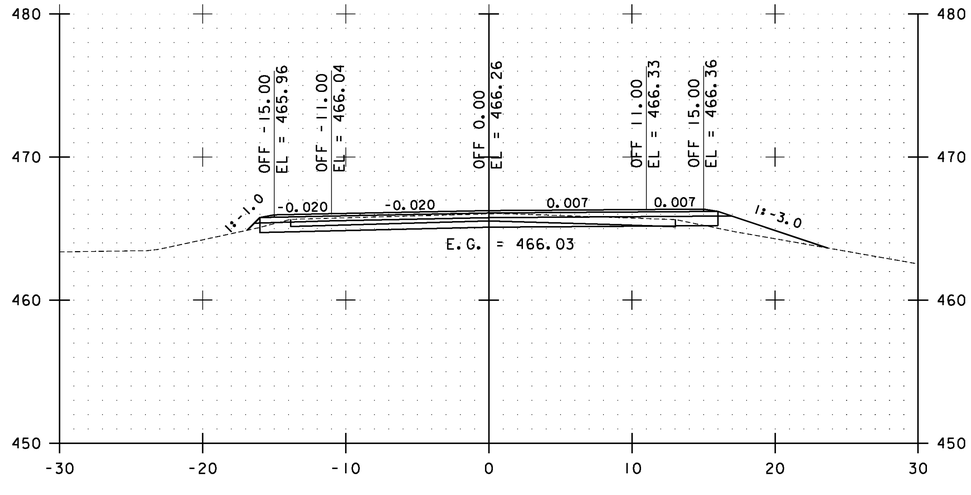
15+50.00



16+50.00



15+00.00



16+00.00

STA. 15+00.00 TO STA. 16+50.00

0 10 20
SCALE

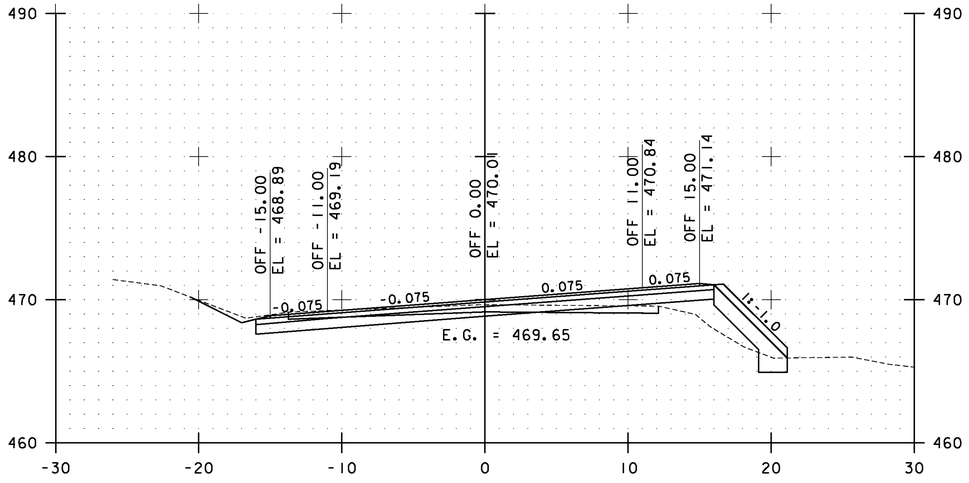
Stantec

WESTFORD CROSS SECTIONS SHEET #8

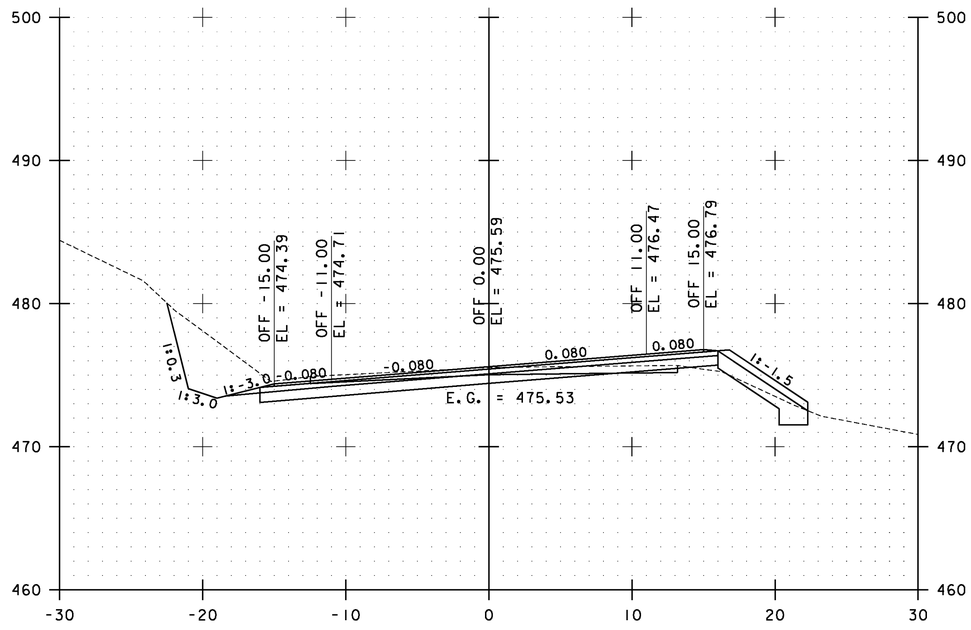
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs119.i

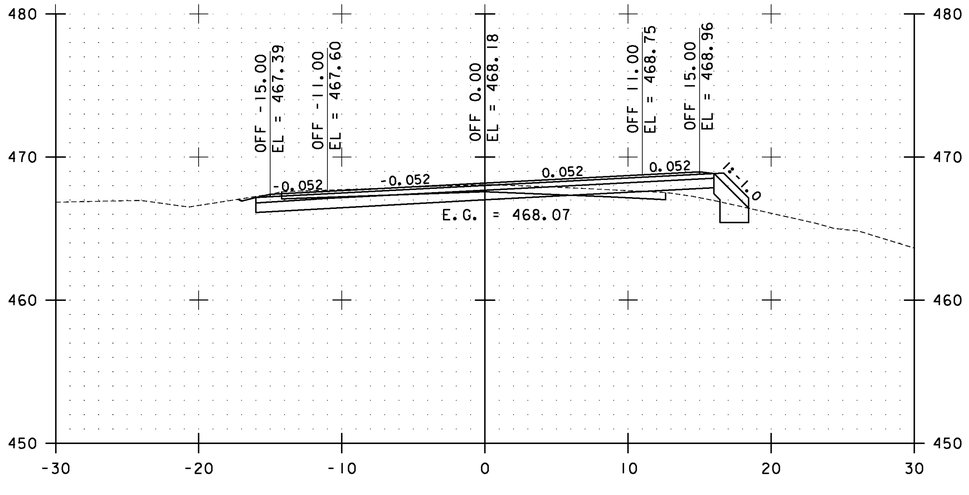
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 210 OF 239



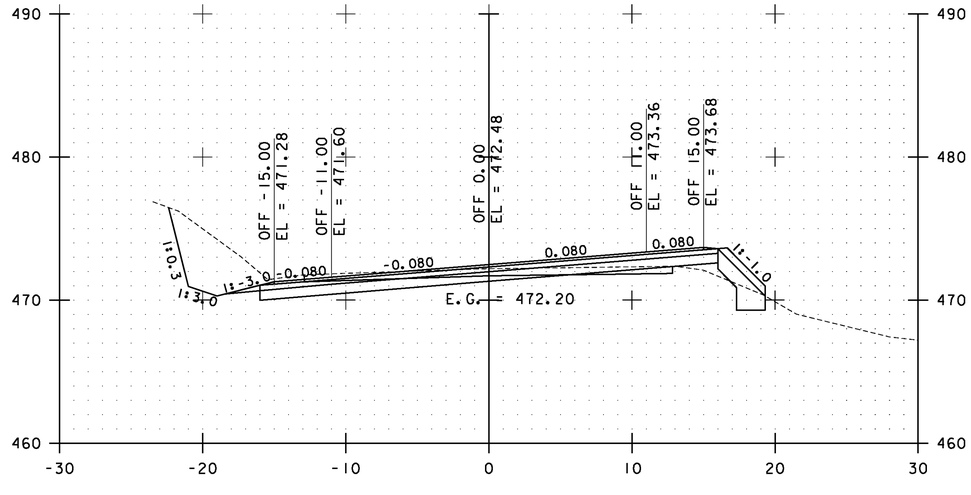
17+50.00



18+50.00



17+00.00



18+00.00

STA. 17+00.00 TO STA. 18+50.00

0 10 20
SCALE

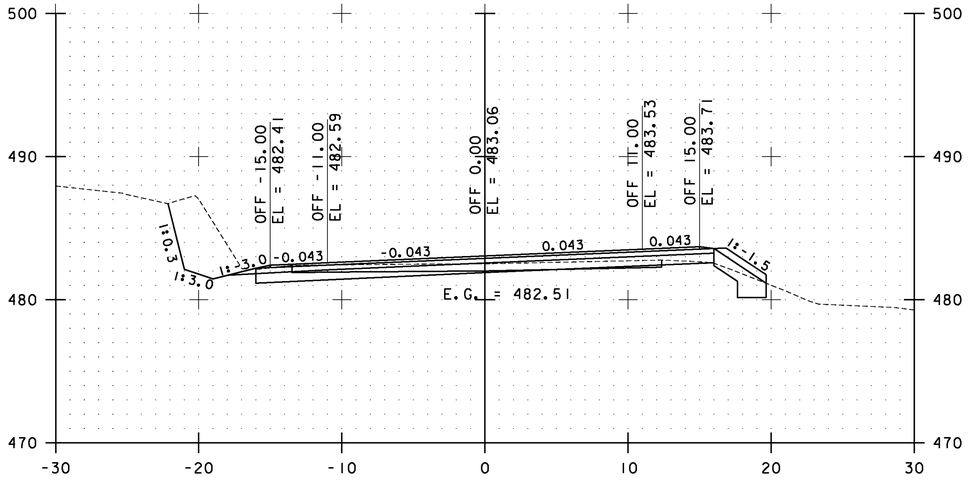
Stantec

WESTFORD CROSS SECTIONS SHEET #9

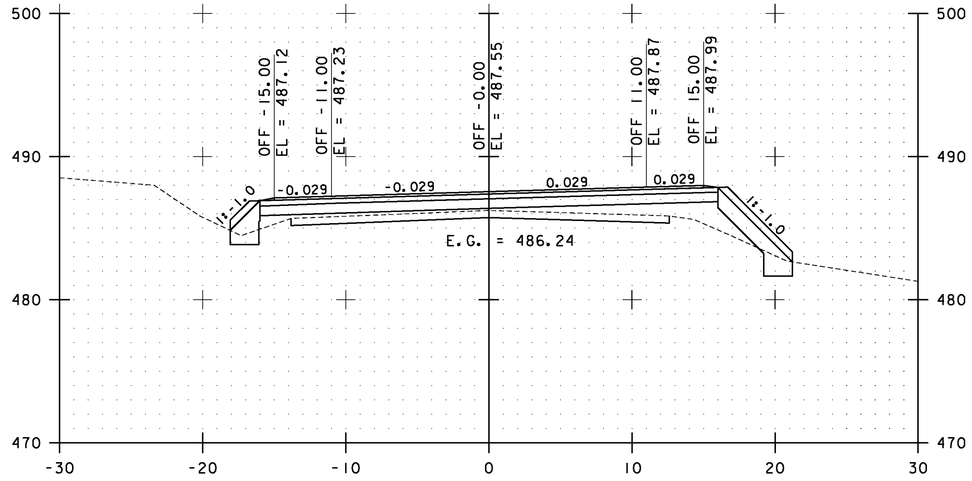
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs120.i

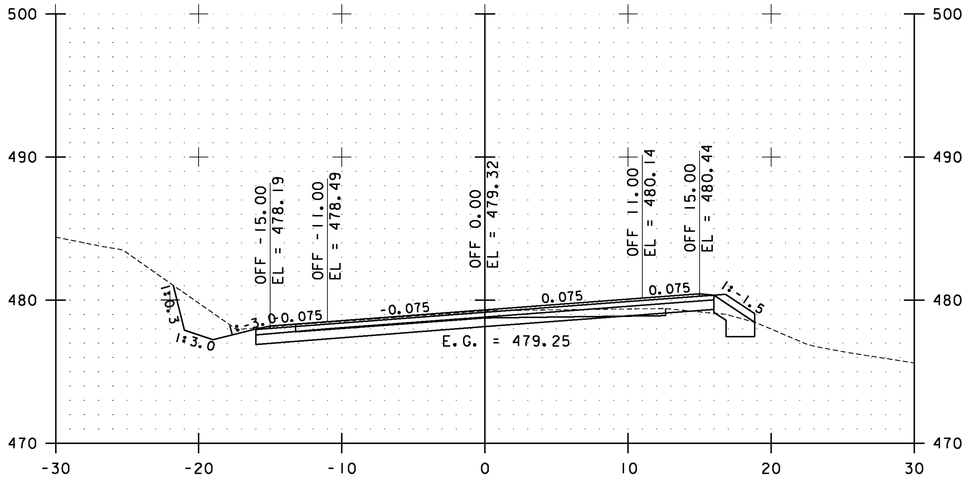
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 211 OF 239



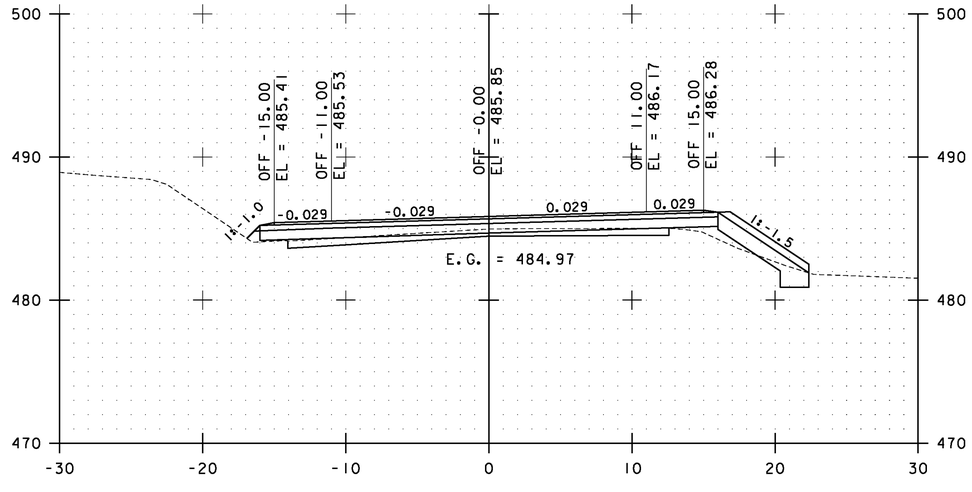
19+50.00



20+50.00



19+00.00



20+00.00

STA. 19+00.00 TO STA. 20+50.00

0 10 20
SCALE

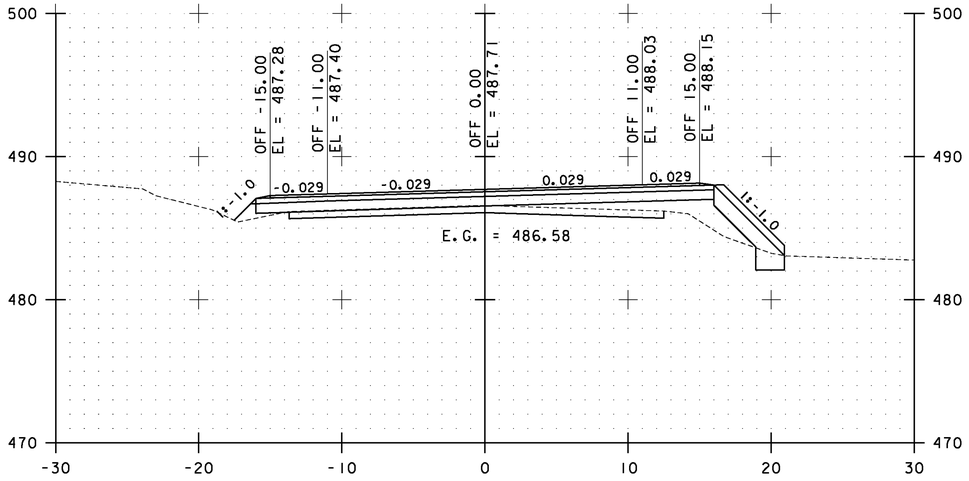
Stantec

WESTFORD CROSS SECTIONS SHEET #10

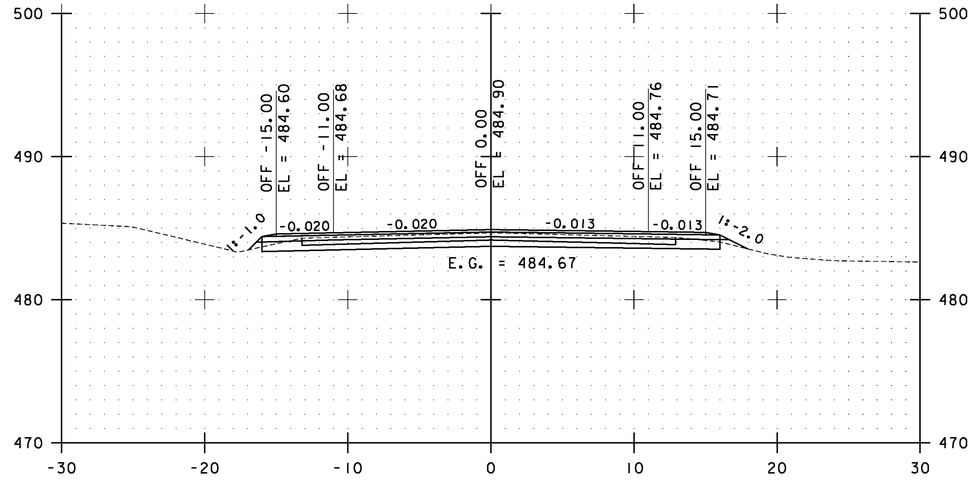
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs121.i

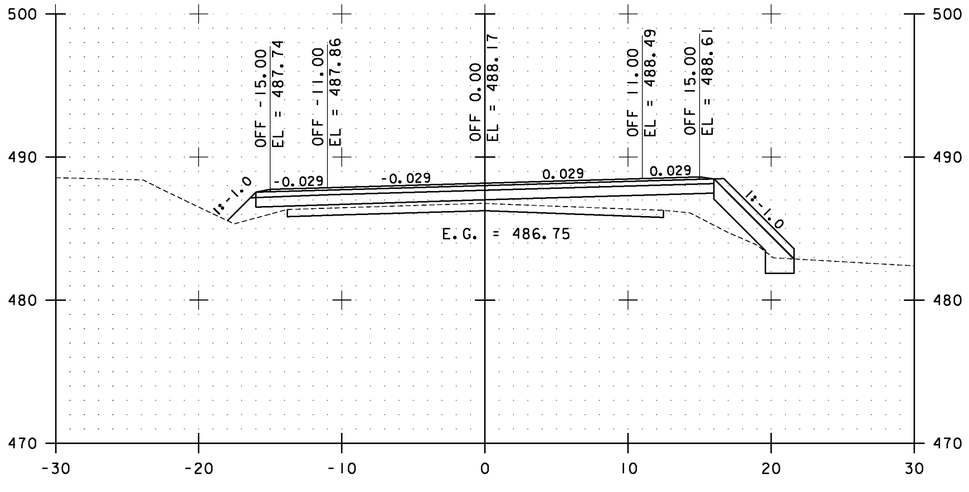
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 212 OF 239



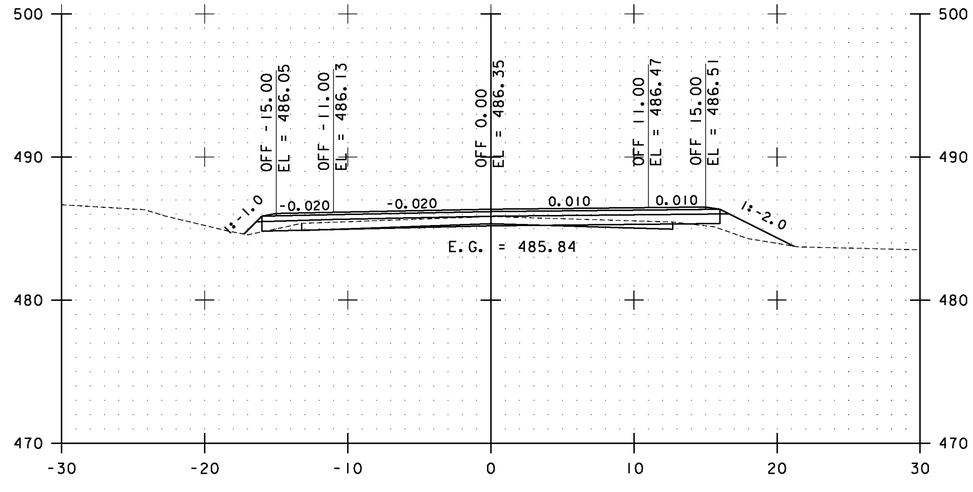
21+50.00



22+50.00



21+00.00



22+00.00

STA. 21+00.00 TO STA. 22+50.00

0 10 20
SCALE

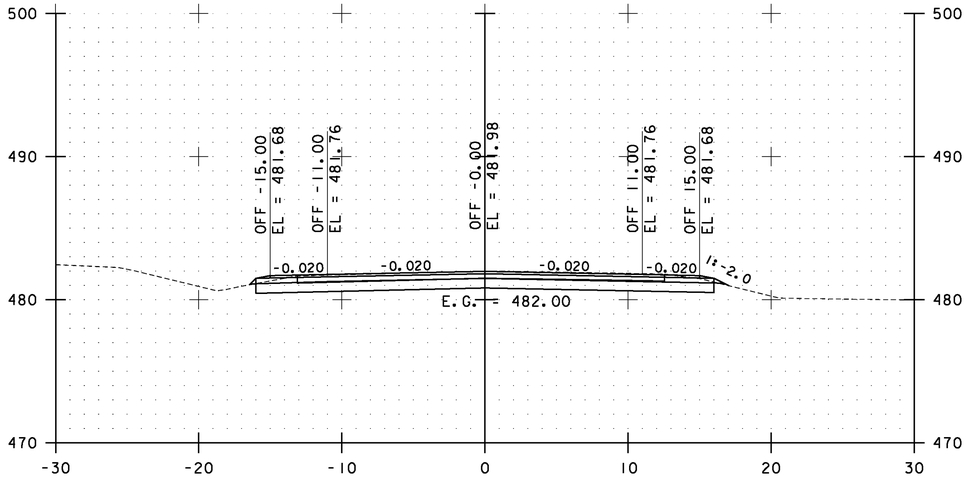
Stantec

WESTFORD CROSS SECTIONS SHEET #11

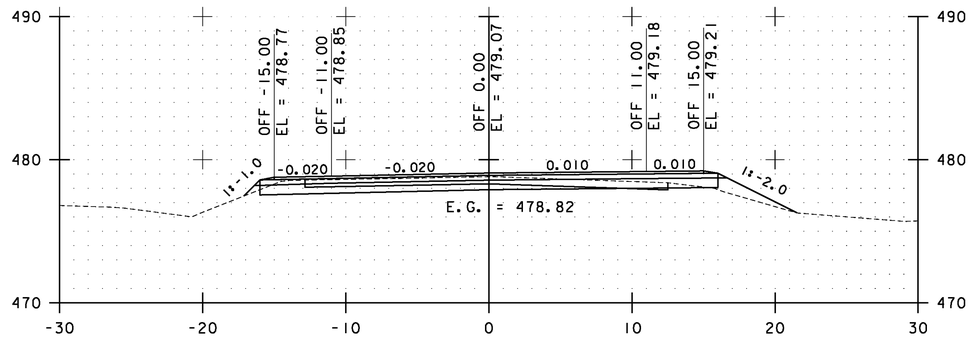
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs122.i

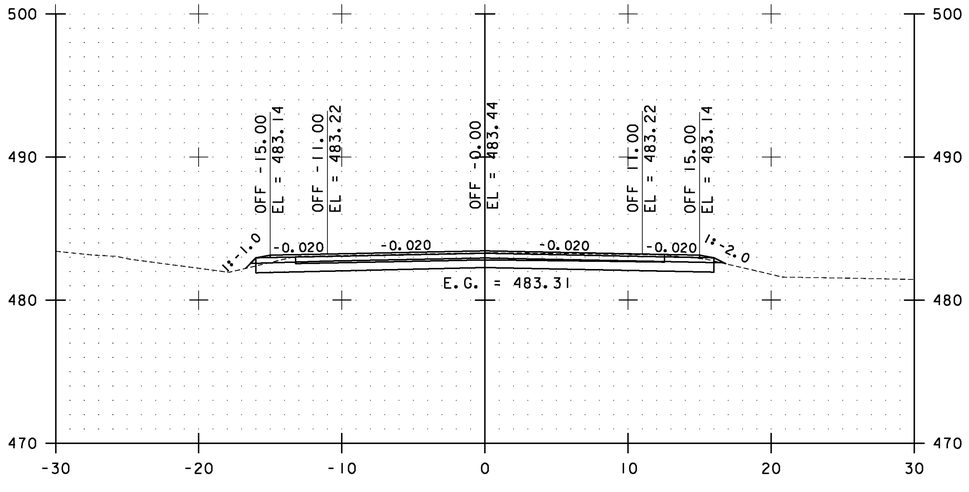
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 213 OF 239



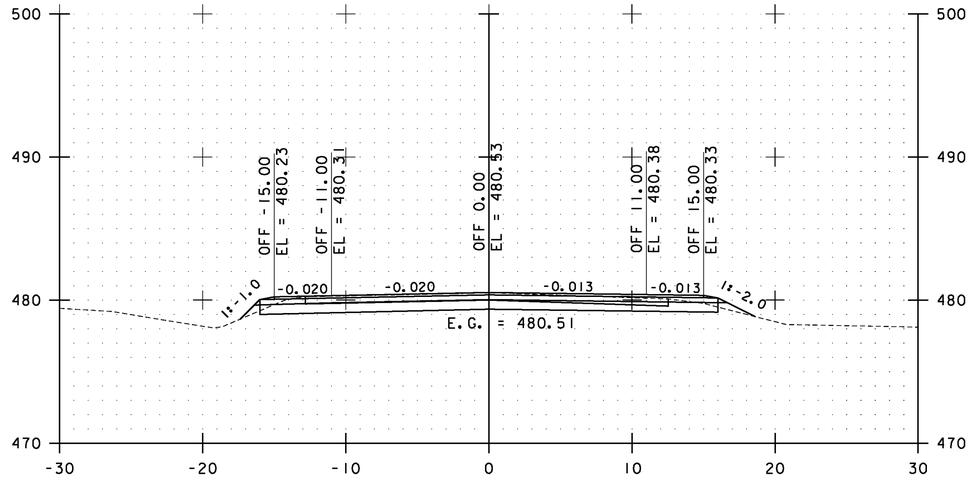
23+50.00



24+50.00



23+00.00



24+00.00

STA. 23+00.00 TO STA. 24+50.00

0 10 20
SCALE

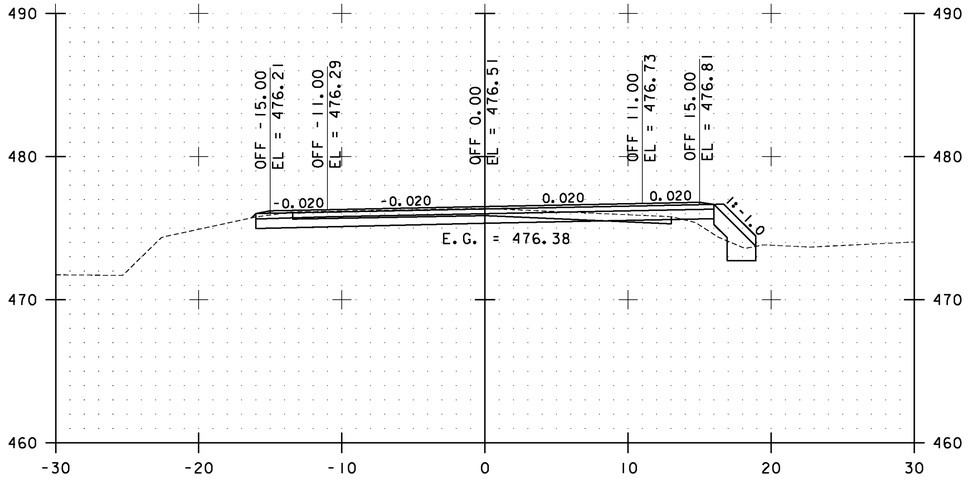
Stantec

WESTFORD CROSS SECTIONS SHEET #12

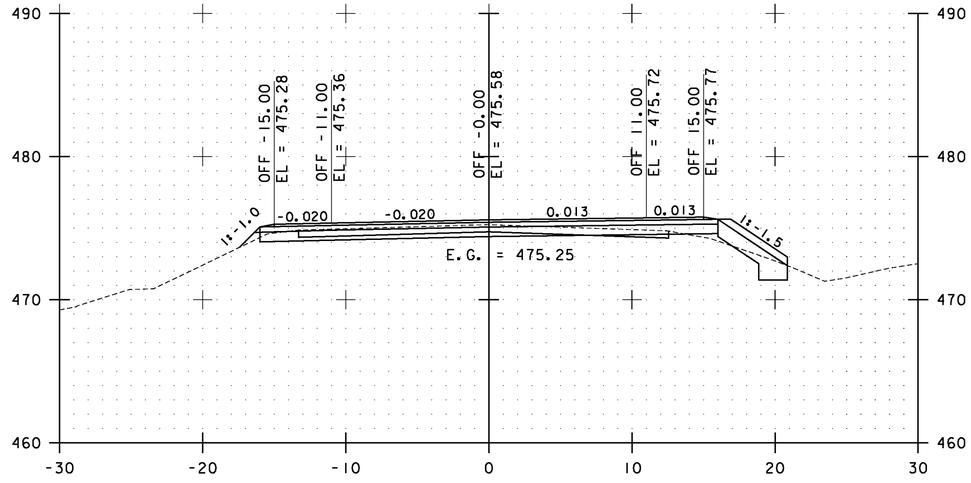
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs123.i

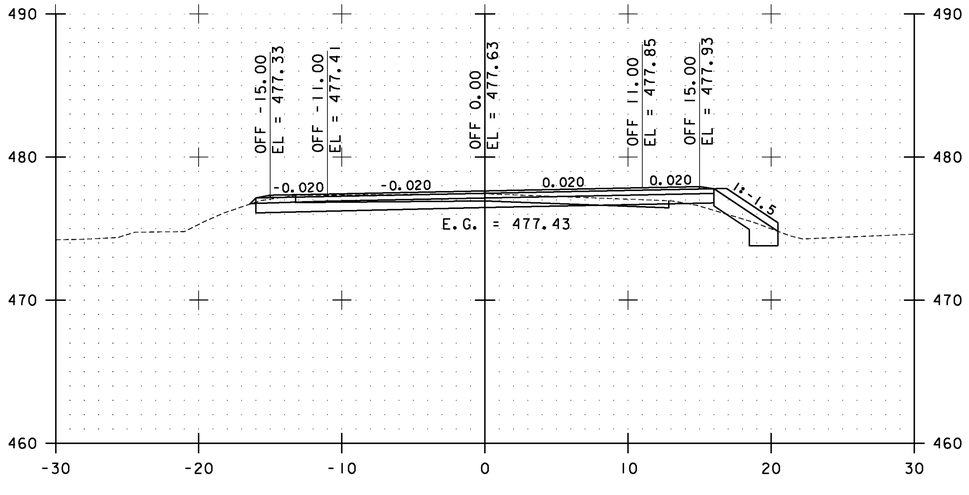
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 214 OF 239



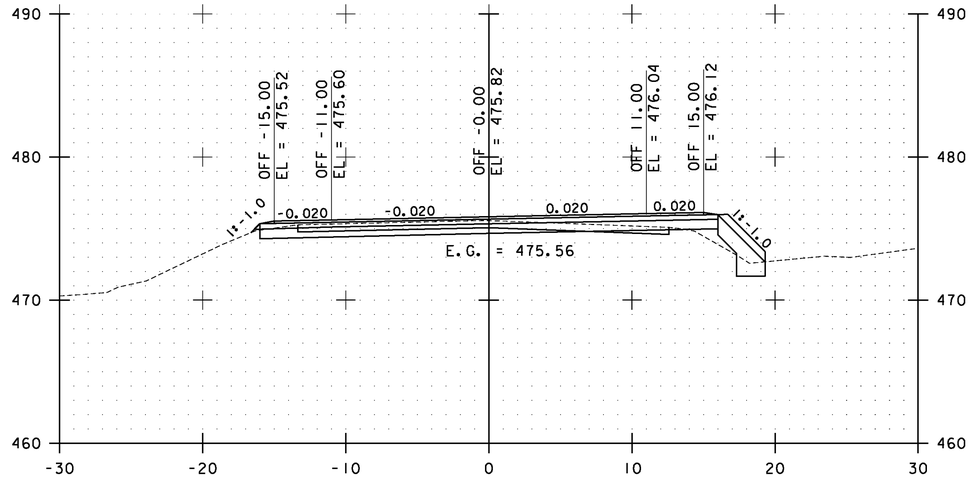
25+50.00



26+50.00



25+00.00



26+00.00

STA. 25+00.00 TO STA. 26+50.00

0 10 20
SCALE

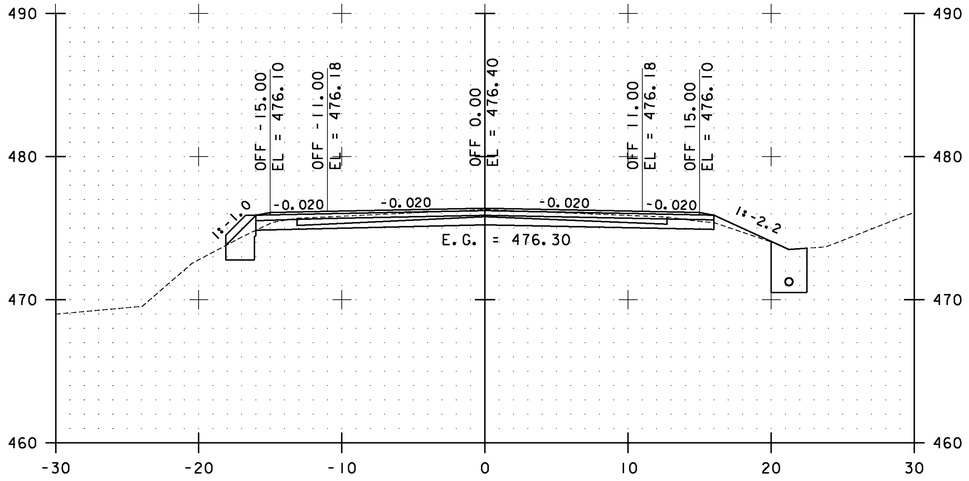
Stantec

WESTFORD CROSS SECTIONS SHEET #13

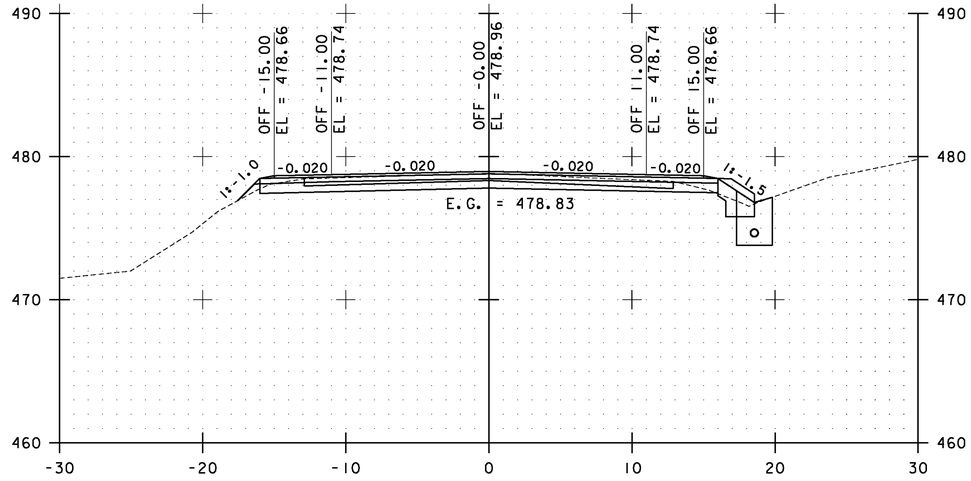
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs124.i

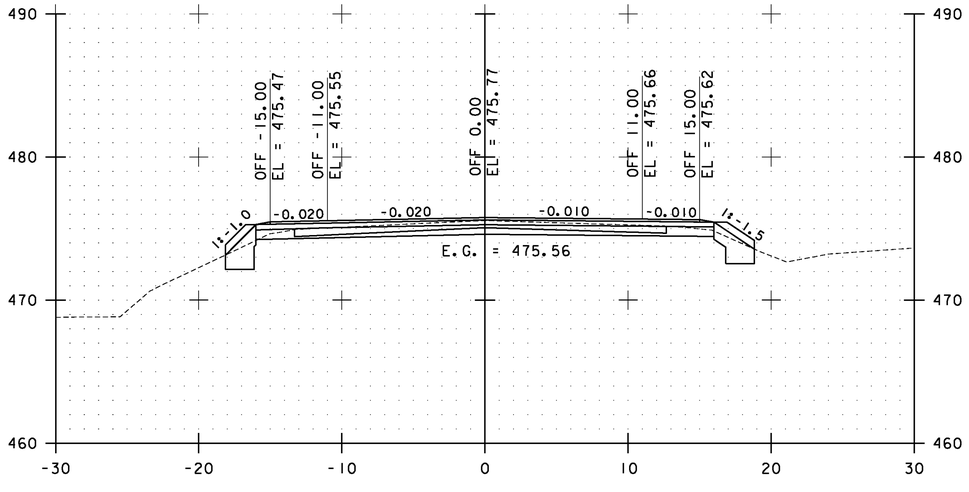
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 215 OF 239



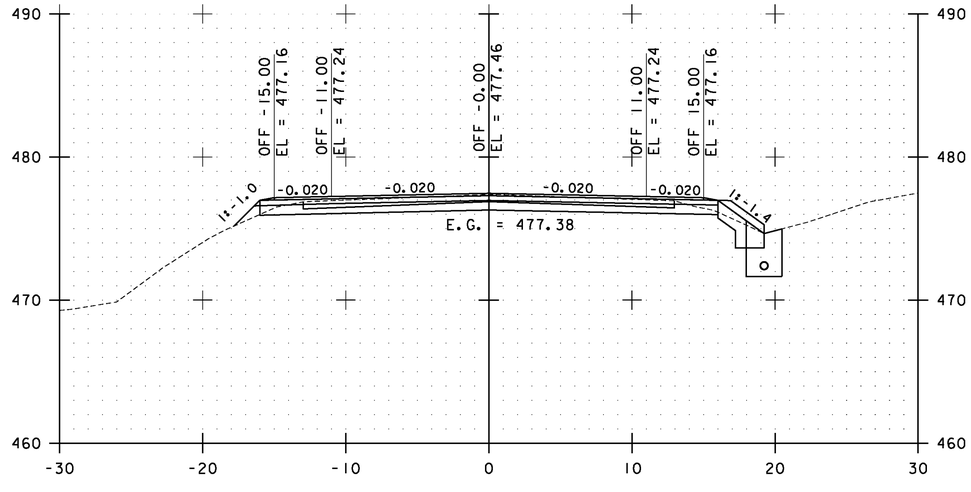
27+50.00



28+50.00



27+00.00



28+00.00

STA. 27+00.00 TO STA. 28+50.00

0 10 20
SCALE

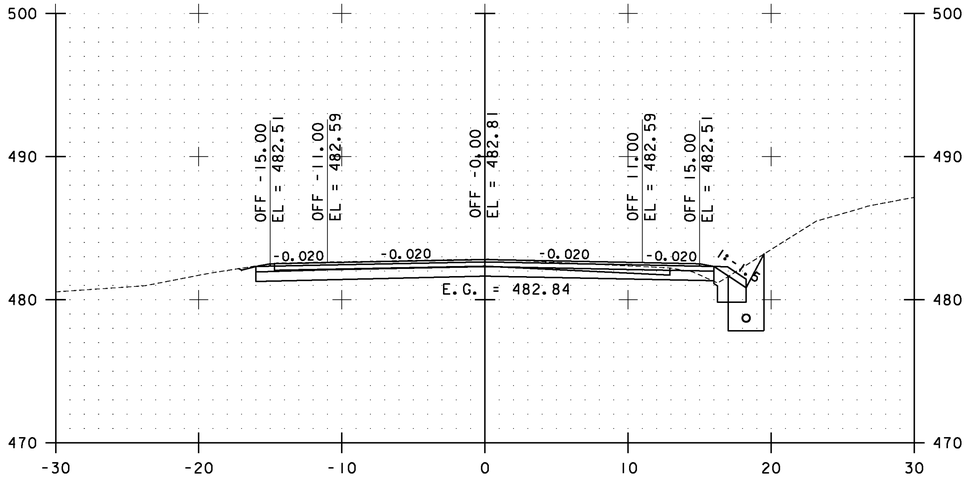
Stantec

WESTFORD CROSS SECTIONS SHEET #14

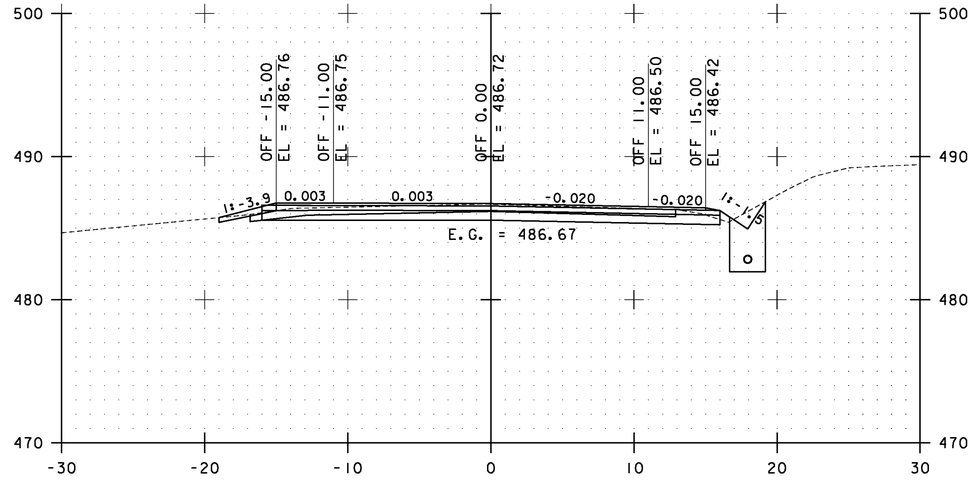
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs125.i

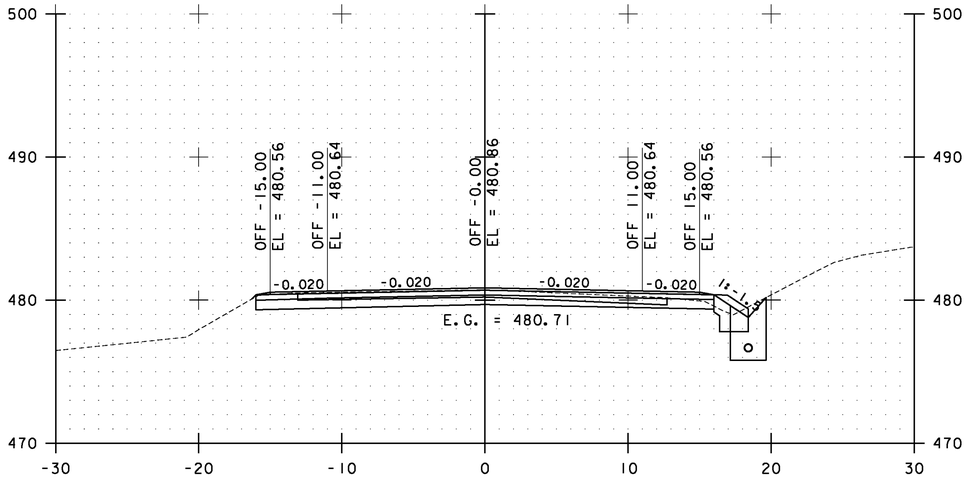
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 216 OF 239



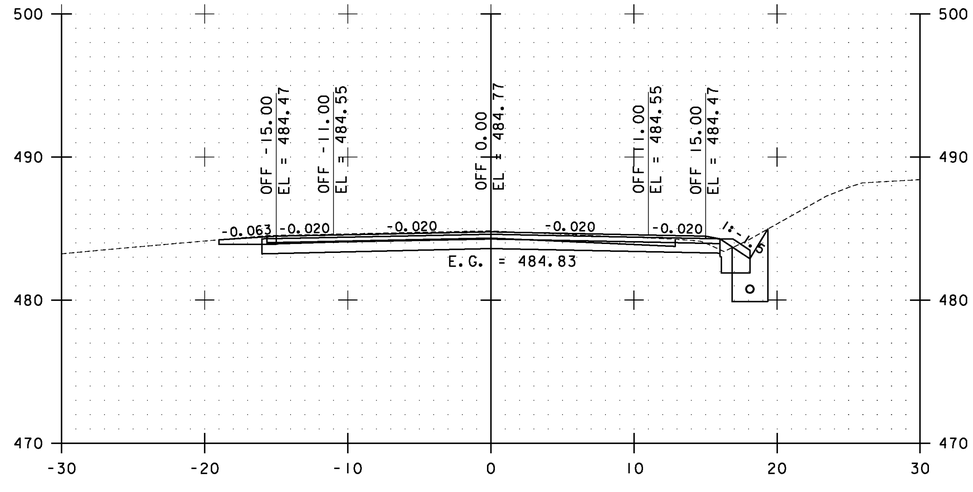
29+50.00



30+50.00



29+00.00



30+00.00

STA. 29+00.00 TO STA. 30+50.00

0 10 20
SCALE

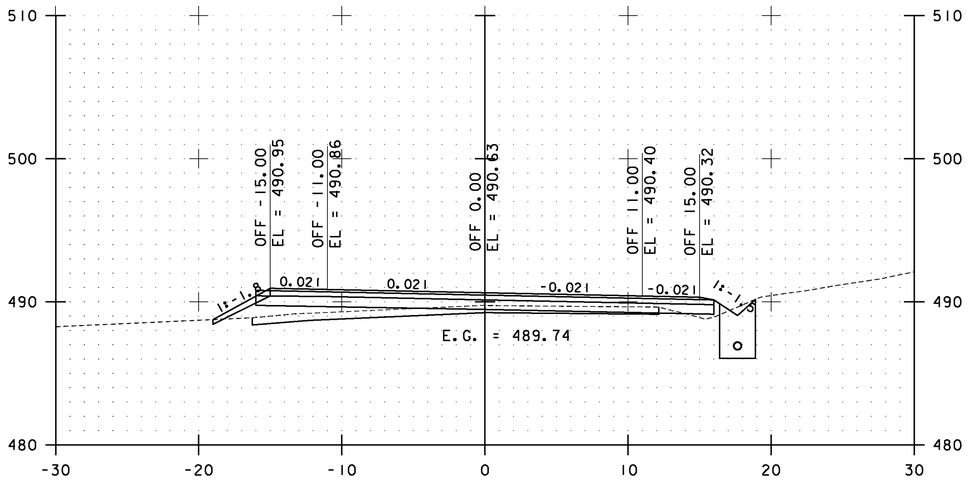
Stantec

WESTFORD CROSS SECTIONS SHEET #15

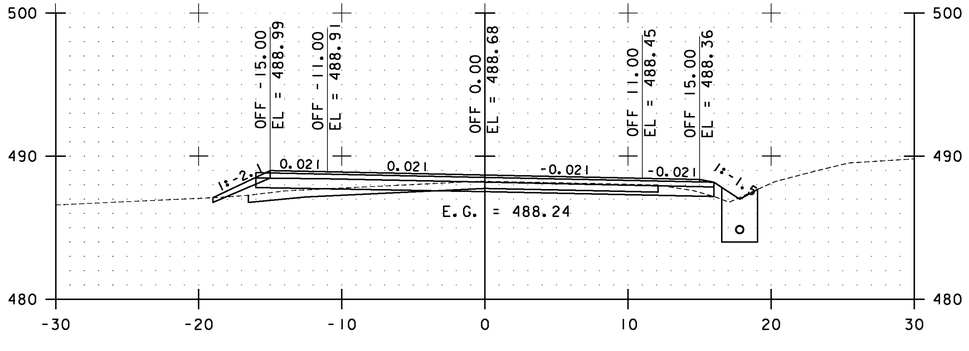
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs126.i

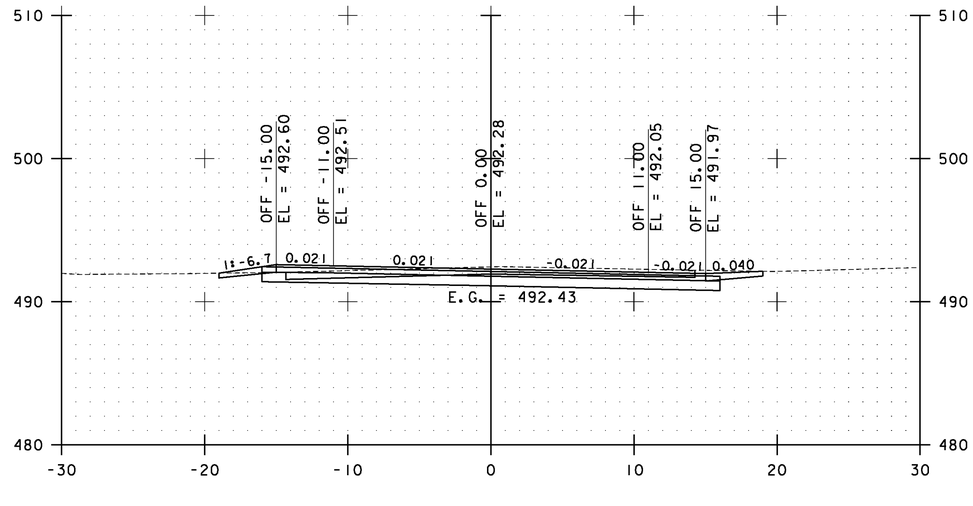
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 217 OF 239



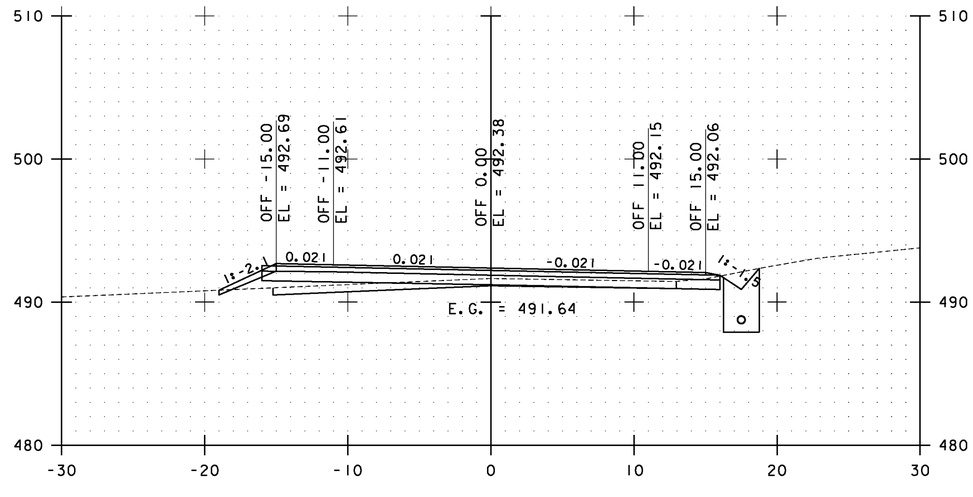
31+50.00



31+00.00



32+50.00



32+00.00

STA. 31+00.00 TO STA. 32+50.00

0 10 20
SCALE

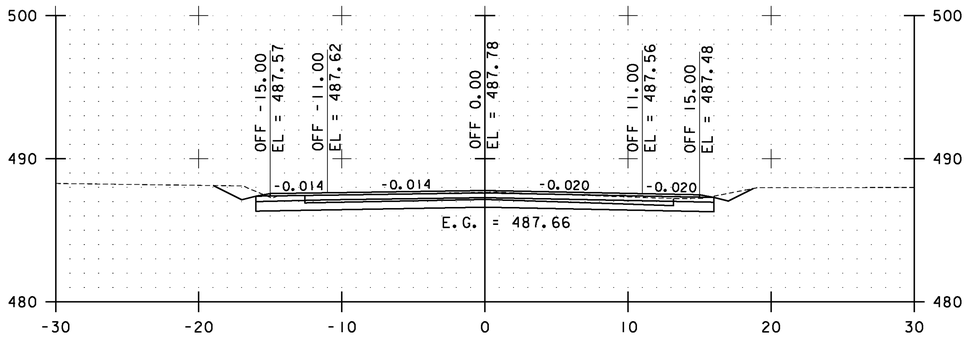
Stantec

WESTFORD CROSS SECTIONS SHEET #16

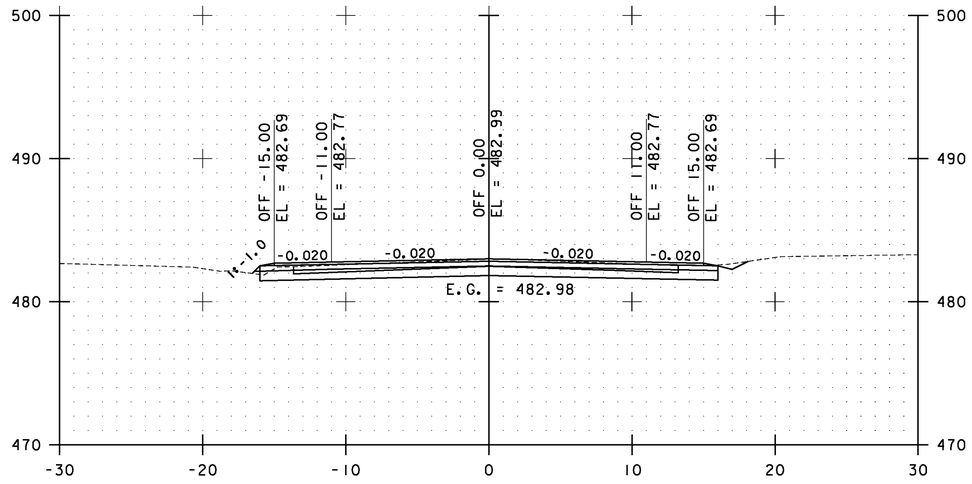
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs127.i

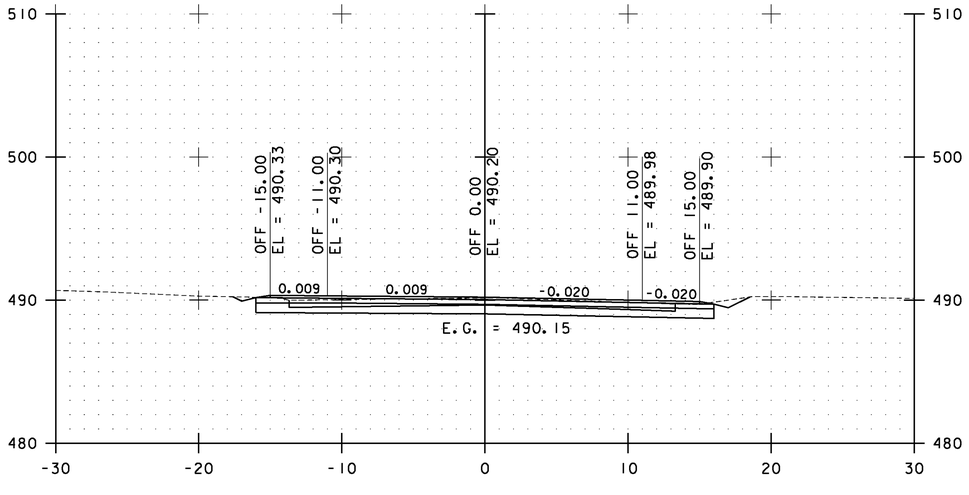
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 218 OF 239



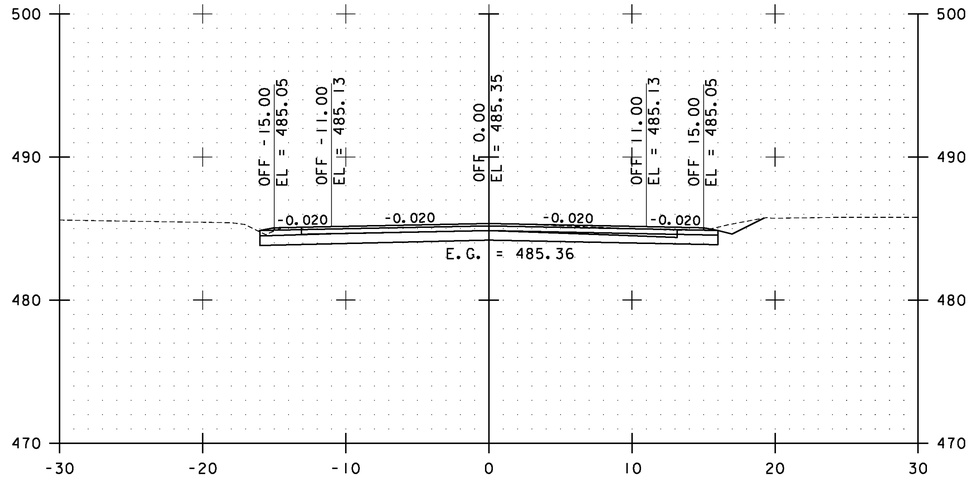
33+50.00



34+50.00



33+00.00



34+00.00

STA. 33+00.00 TO STA. 34+50.00

0 10 20
SCALE

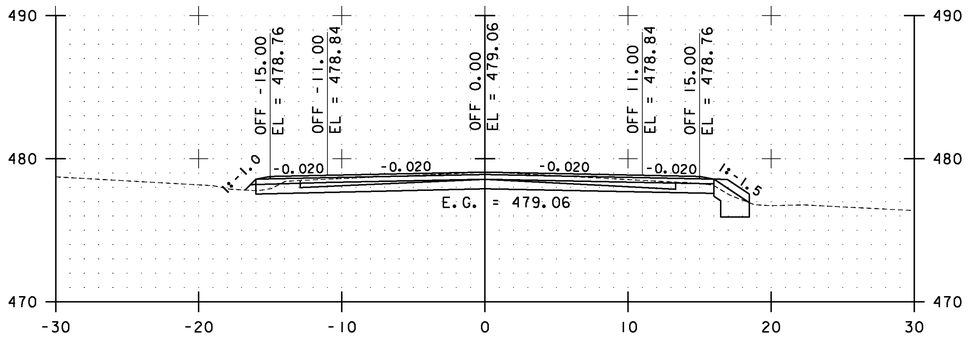
Stantec

WESTFORD CROSS SECTIONS SHEET #17

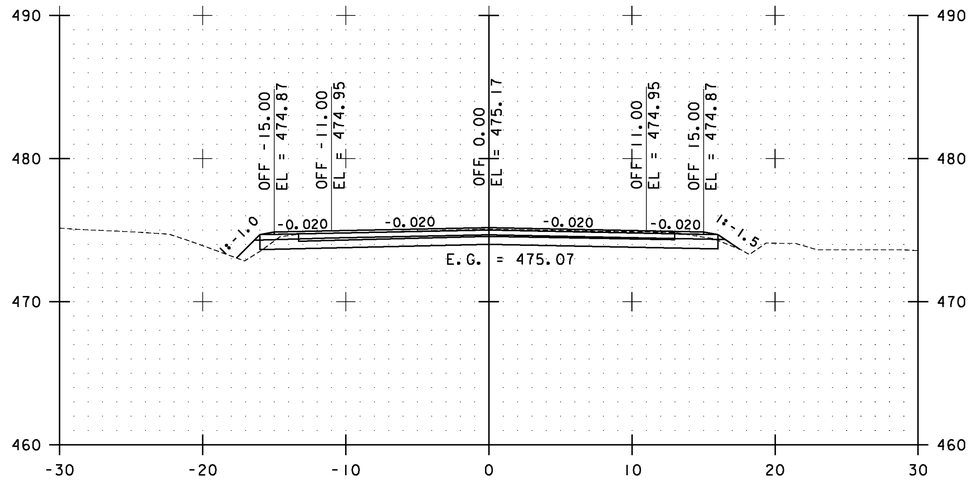
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs128.i

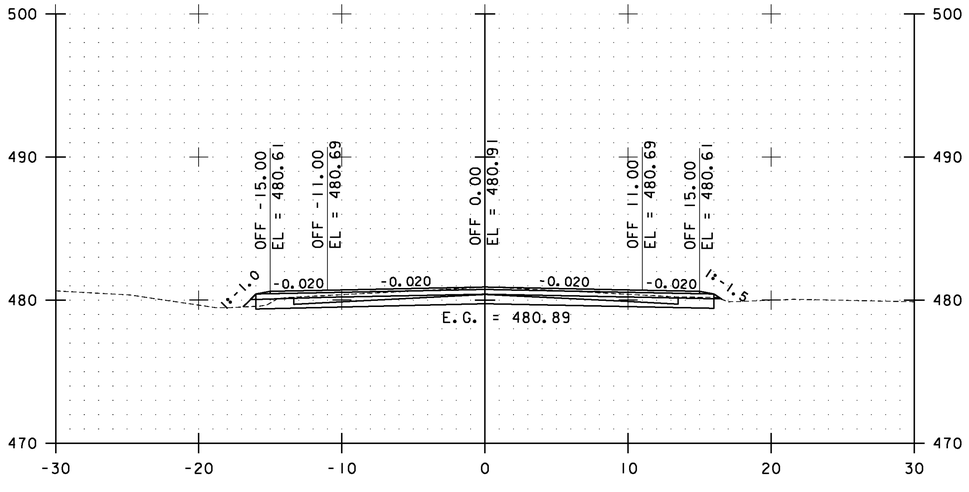
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 219 OF 239



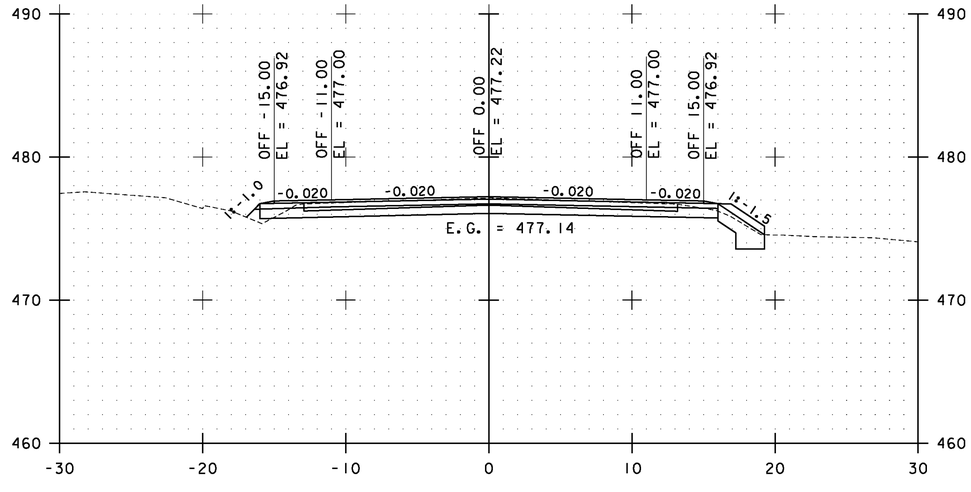
35+50.00



36+50.00



35+00.00



36+00.00

STA. 35+00.00 TO STA. 36+50.00

0 10 20
SCALE

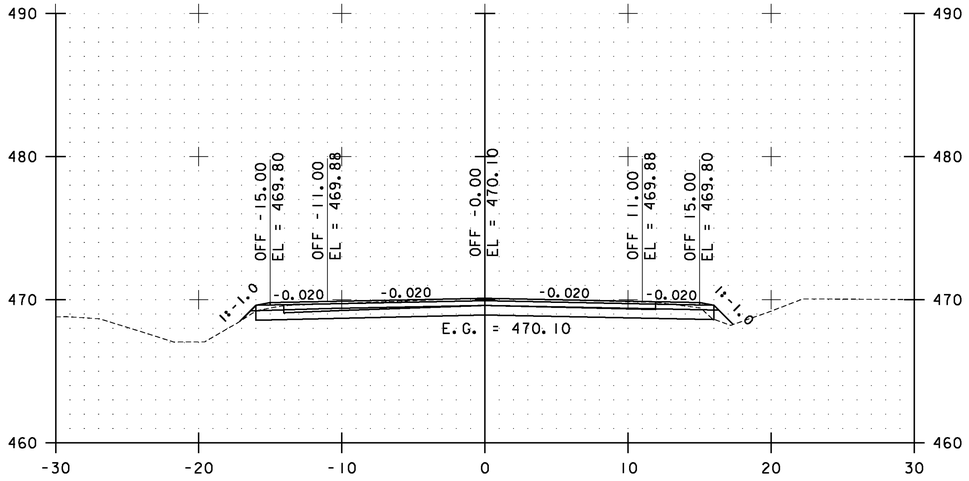
Stantec

WESTFORD CROSS SECTIONS SHEET #18

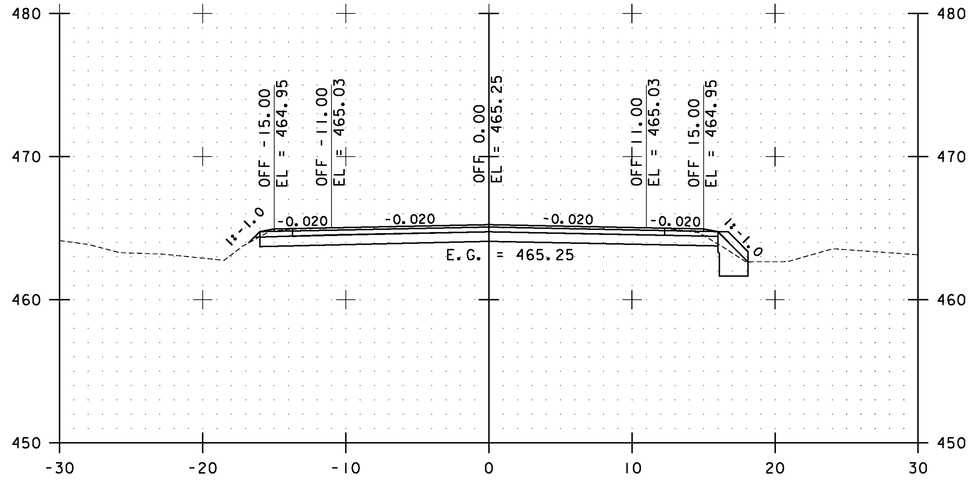
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs129.i

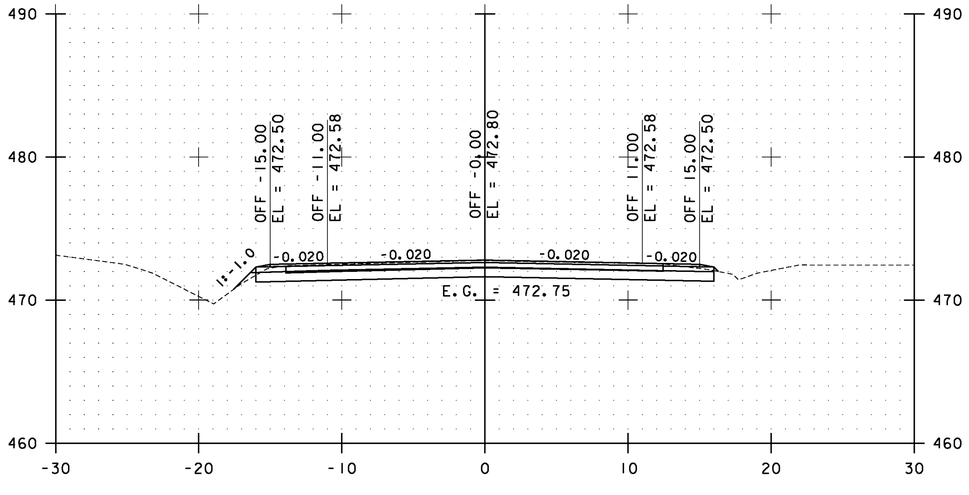
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 220 OF 239



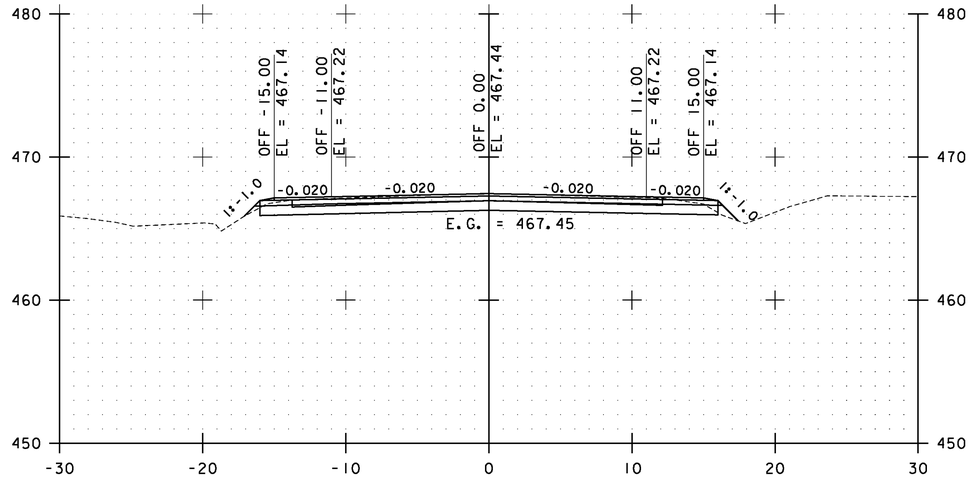
37+50.00



38+50.00



37+00.00



38+00.00

STA. 37+00.00 TO STA. 38+50.00

0 10 20
SCALE

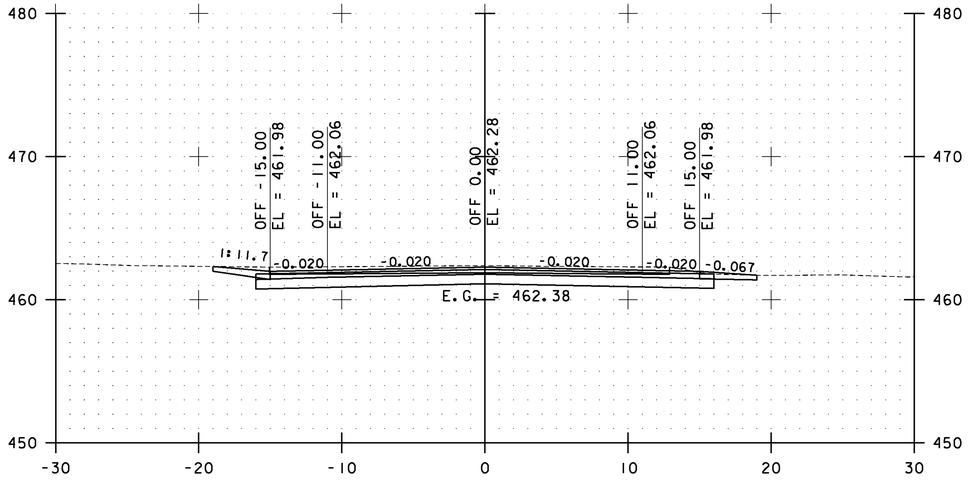
Stantec

WESTFORD CROSS SECTIONS SHEET #19

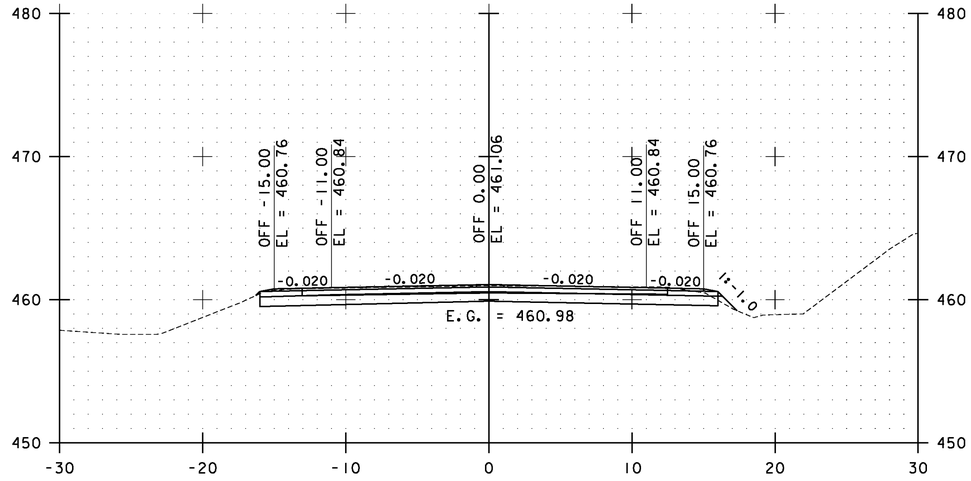
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs130.i

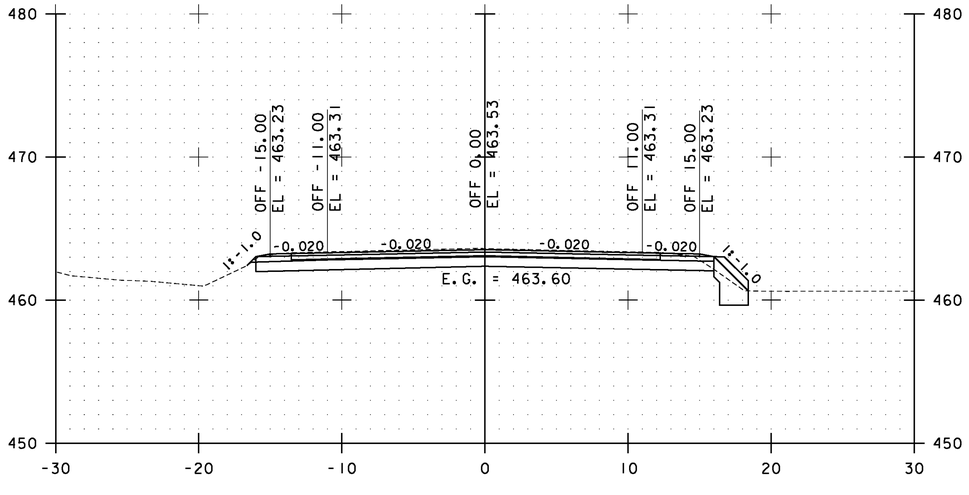
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 221 OF 239



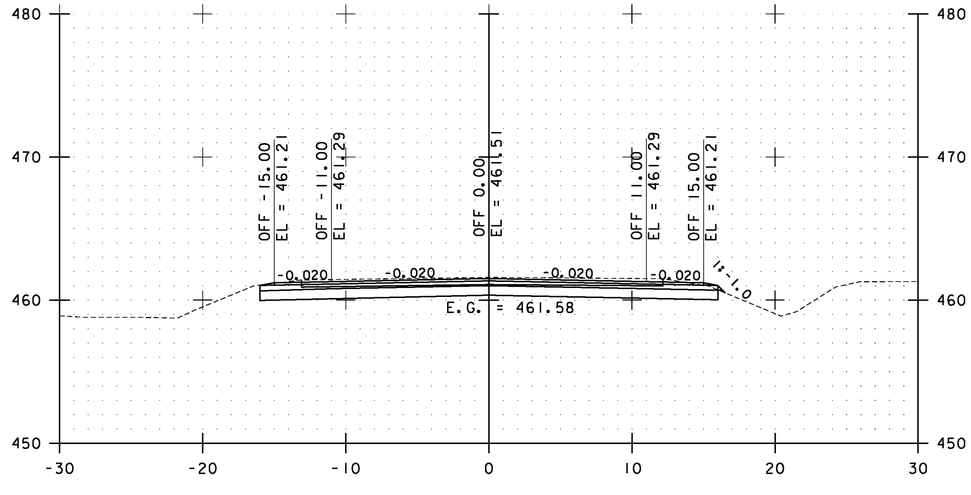
39+50.00



40+50.00



39+00.00



40+00.00

STA. 39+00.00 TO STA. 40+50.00

0 10 20
SCALE

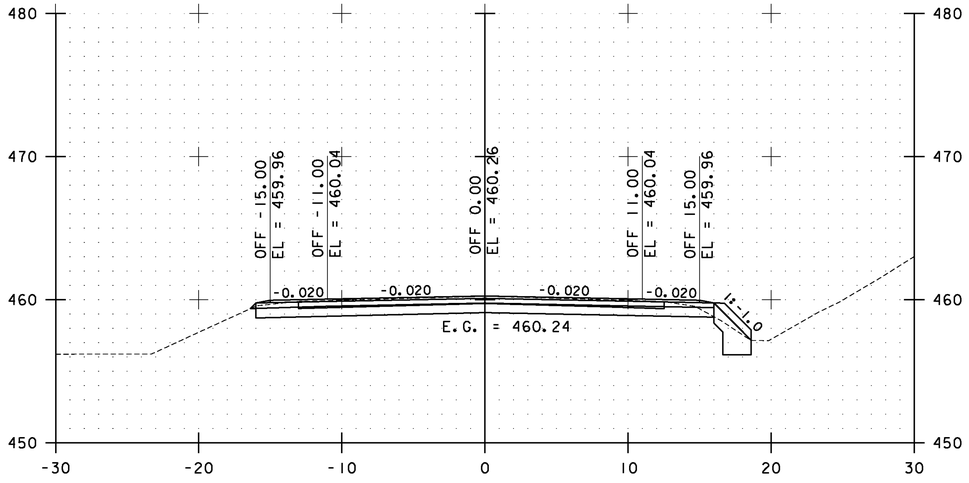
Stantec

WESTFORD CROSS SECTIONS SHEET #20

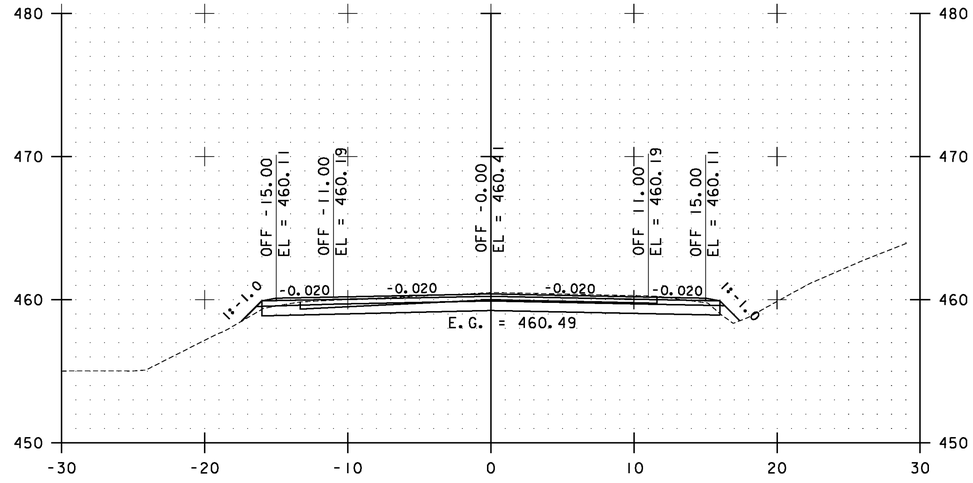
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs131.i

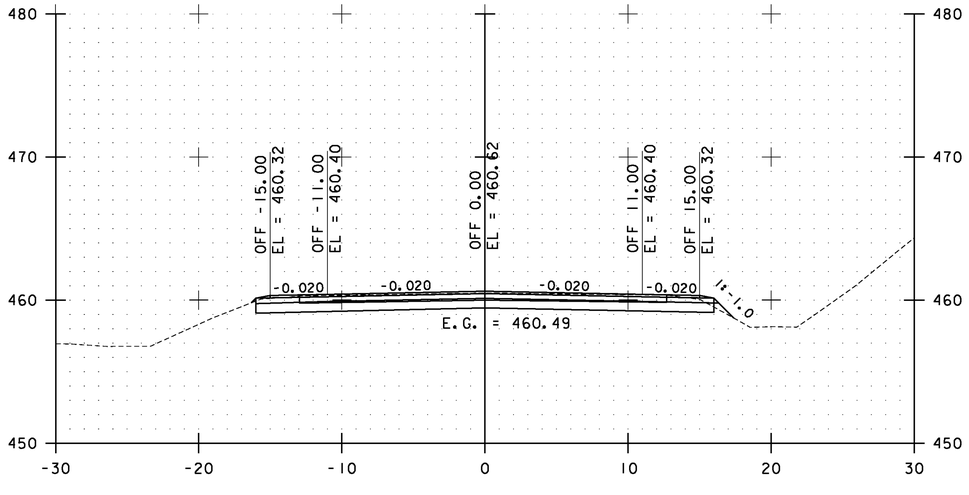
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 222 OF 239



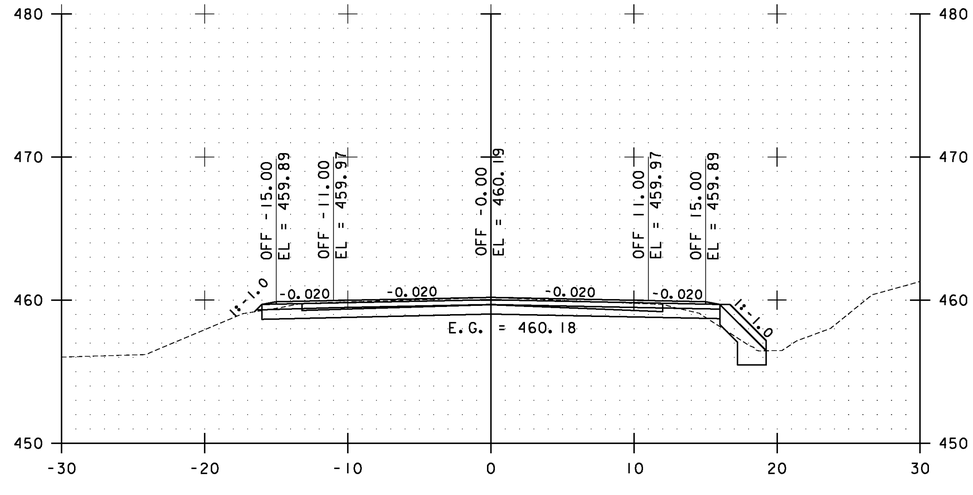
41+50.00



42+50.00



41+00.00



42+00.00

STA. 41+00.00 TO STA. 42+50.00

0 10 20

SCALE

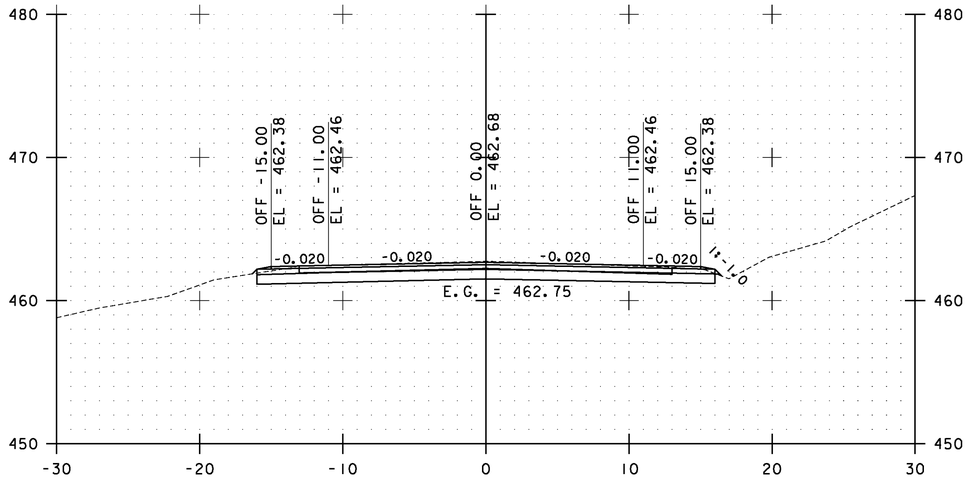
Stantec

WESTFORD CROSS SECTIONS SHEET #21

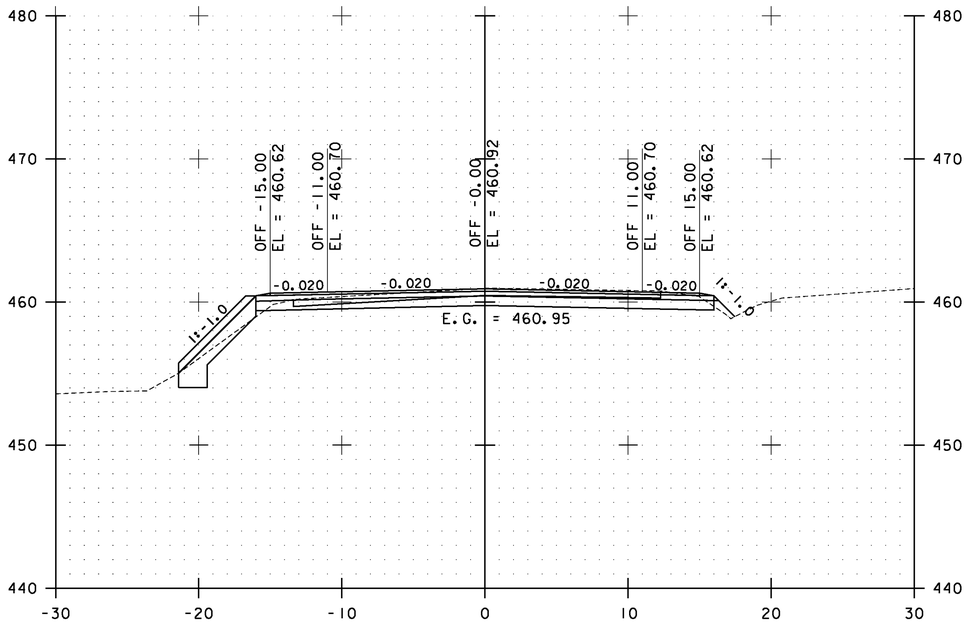
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs132.i

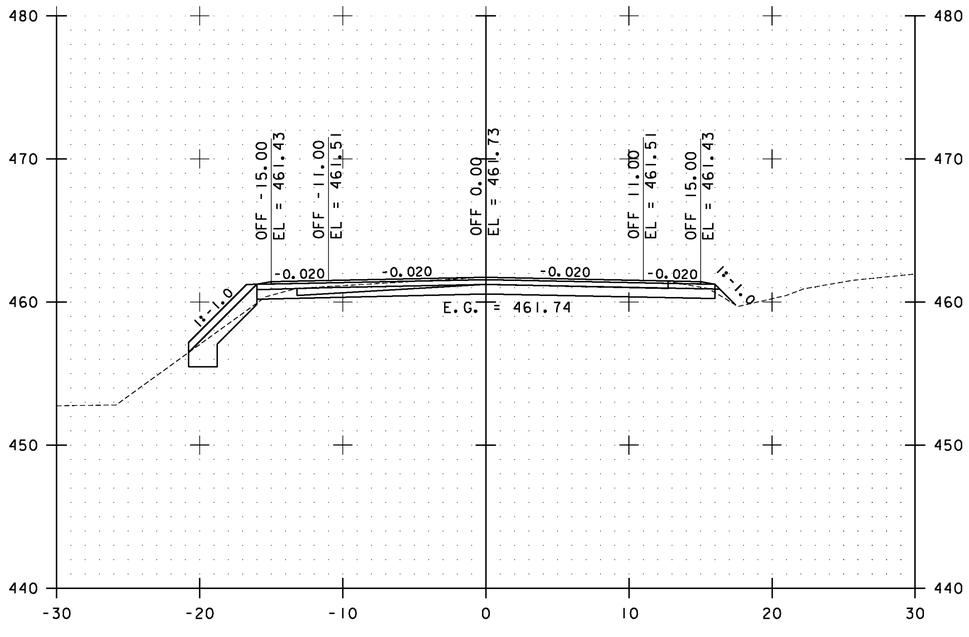
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 223 OF 239



44+00.00



43+00.00



43+50.00

STA. 43+00.00 TO STA. 44+00.00

0 10 20
SCALE

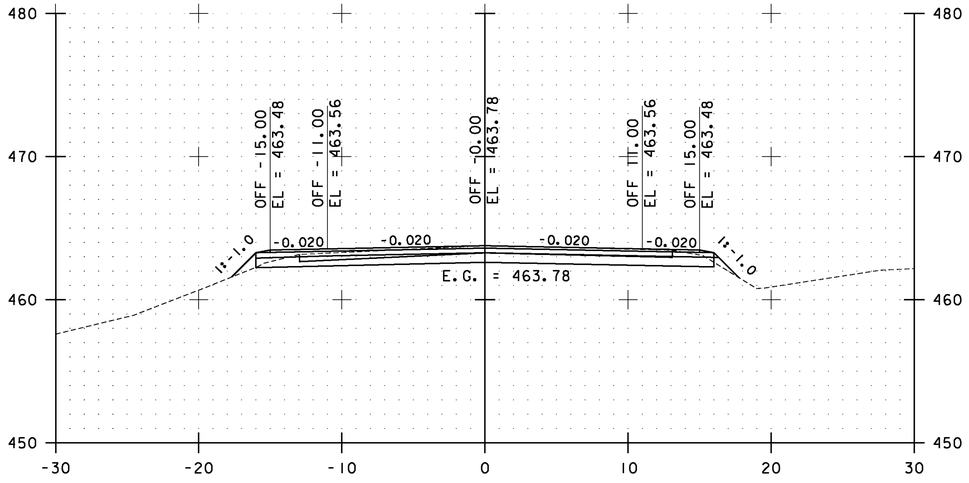
Stantec

WESTFORD CROSS SECTIONS SHEET #22

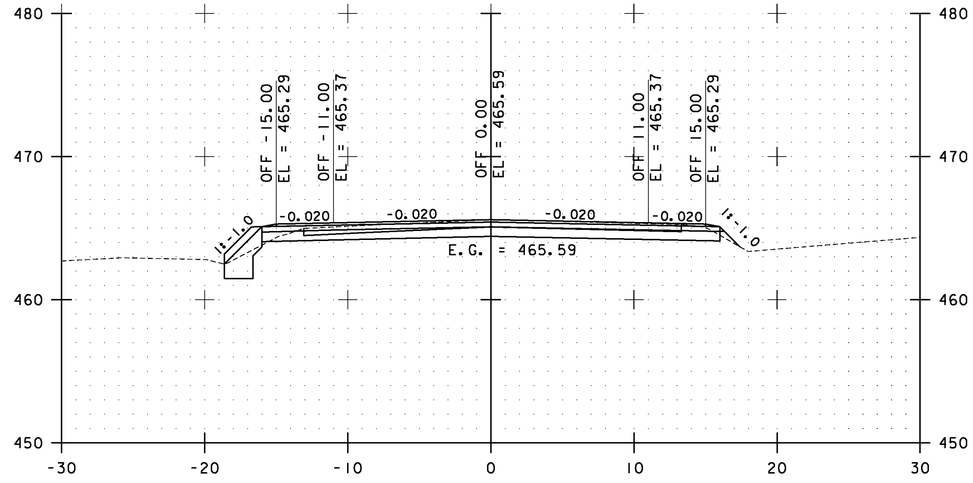
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs133.i

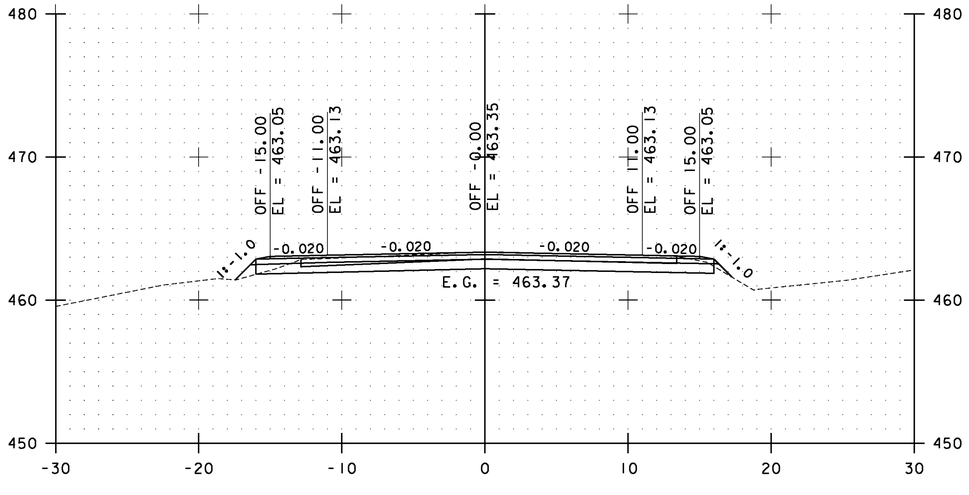
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 224 OF 239



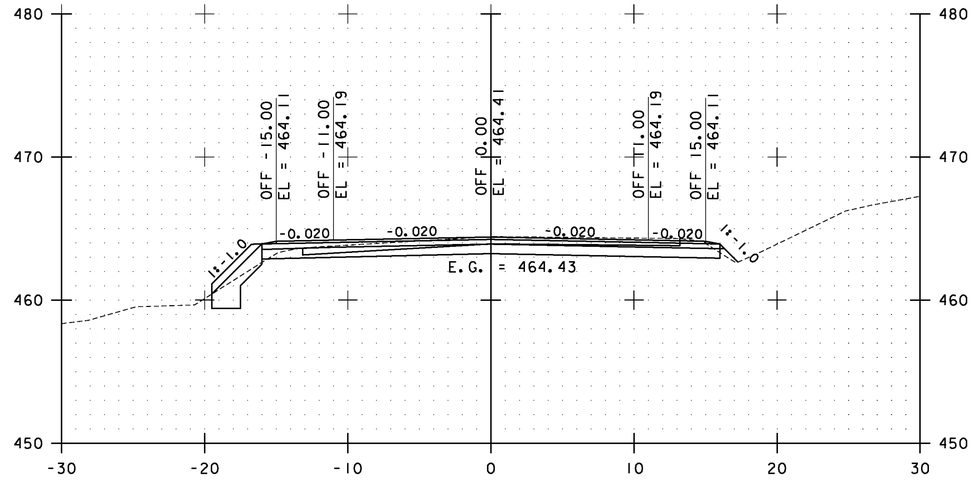
45+00.00



46+00.00



44+50.00



45+50.00

STA. 44+50.00 TO STA. 46+00.00

0 10 20
SCALE

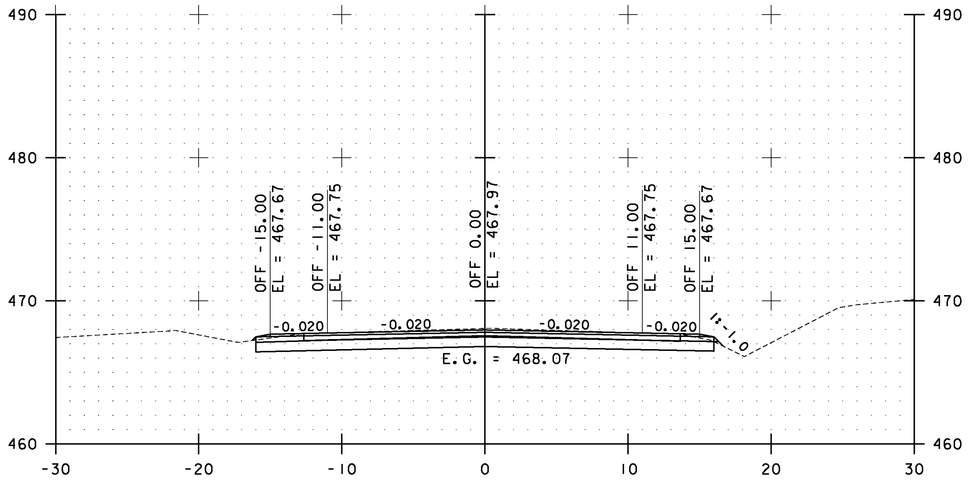
Stantec

WESTFORD CROSS SECTIONS SHEET #23

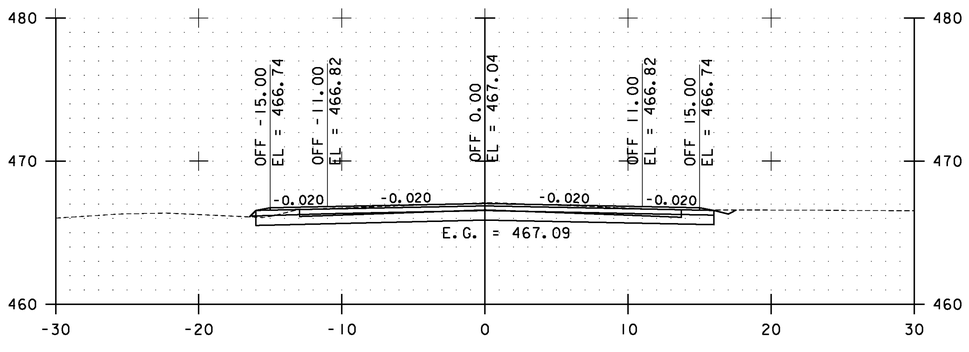
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs134.i

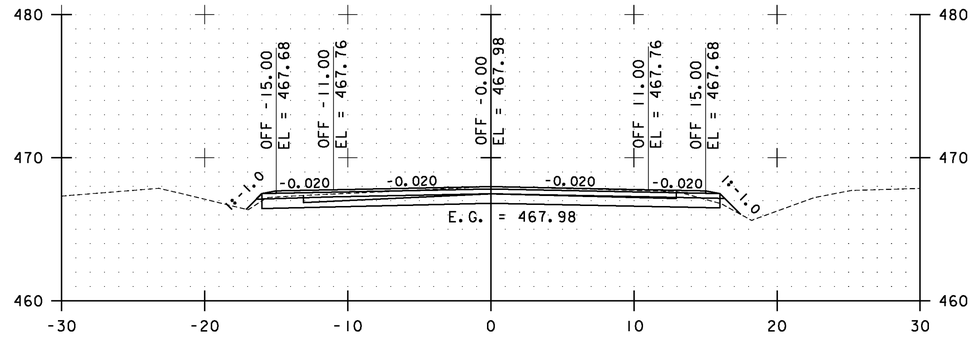
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 225 OF 239



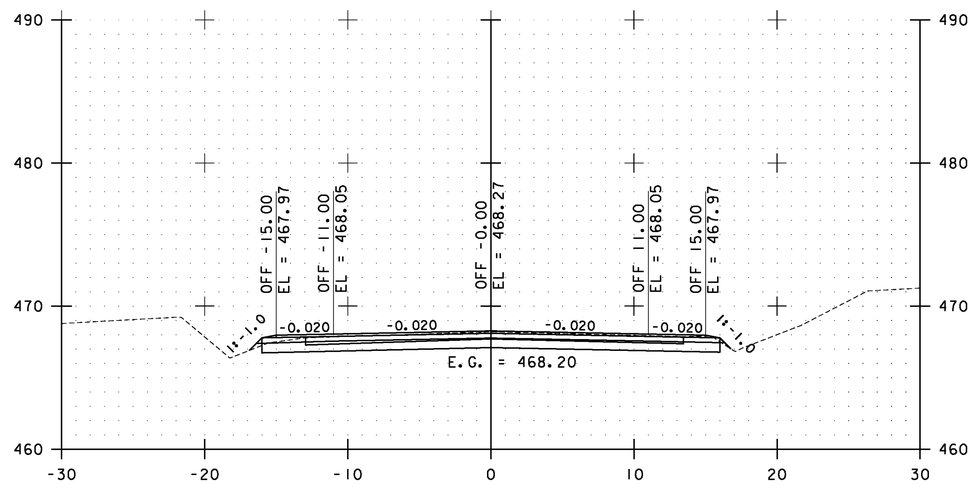
47+00.00



46+50.00



48+00.00



47+50.00

STA. 46+50.00 TO STA. 48+00.00

0 10 20
SCALE

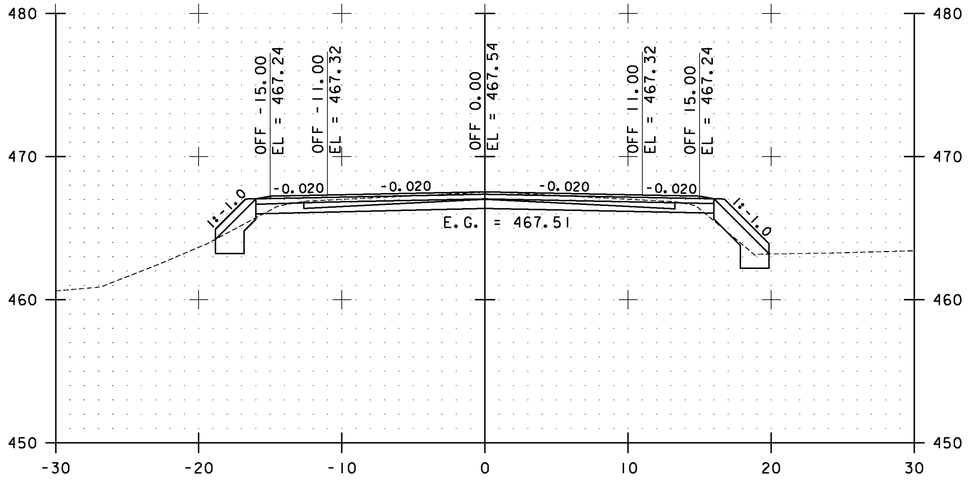
Stantec

WESTFORD CROSS SECTIONS SHEET #24

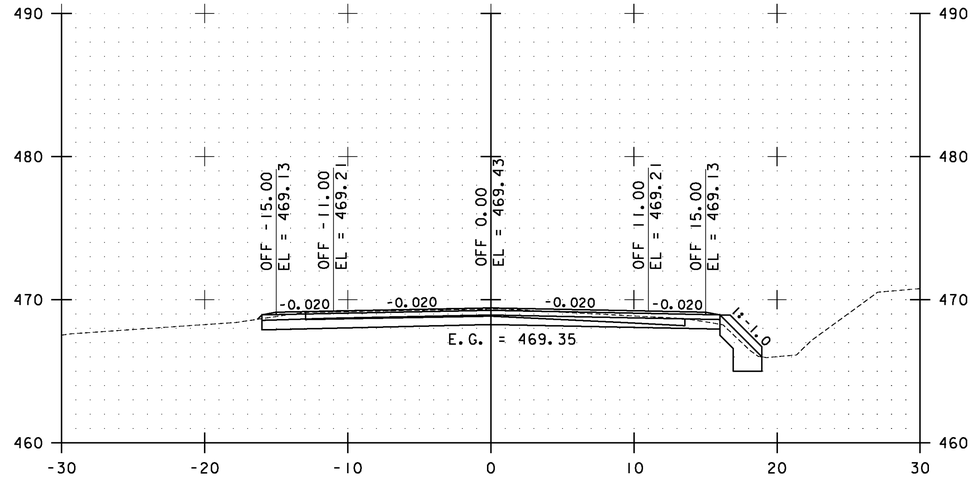
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs135.i

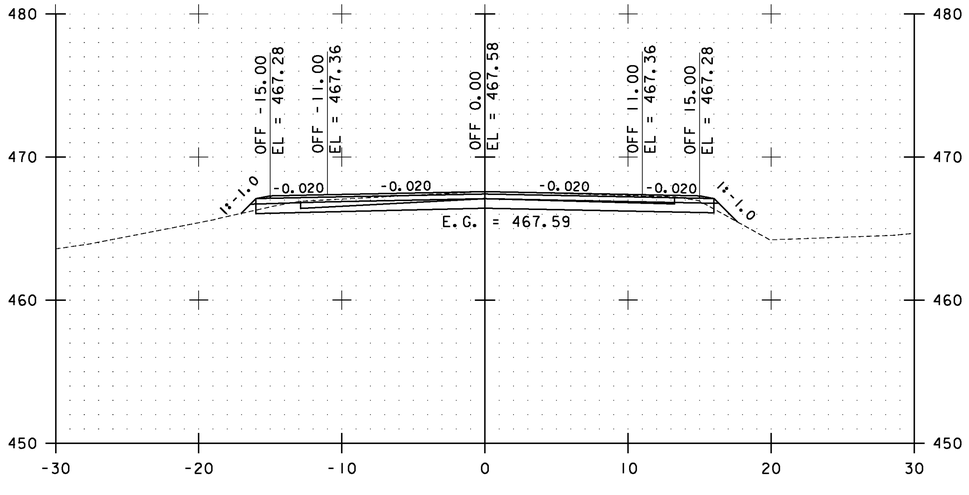
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 226 OF 239



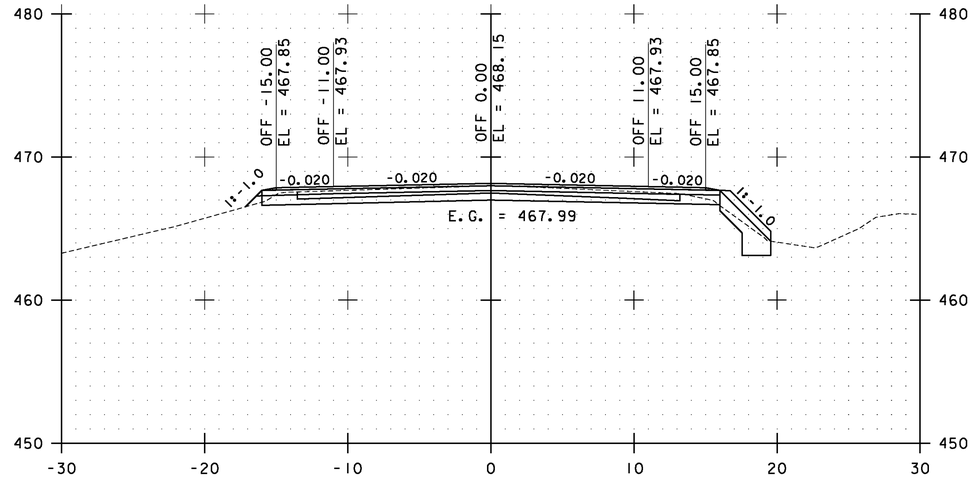
49+00.00



50+00.00



48+50.00



49+50.00

STA. 48+50.00 TO STA. 50+00.00

0 10 20
SCALE

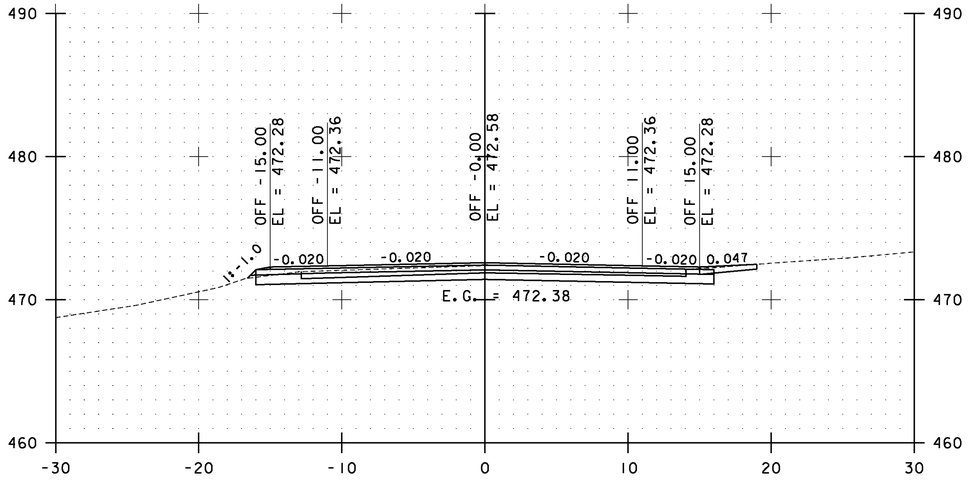
Stantec

WESTFORD CROSS SECTIONS SHEET #25

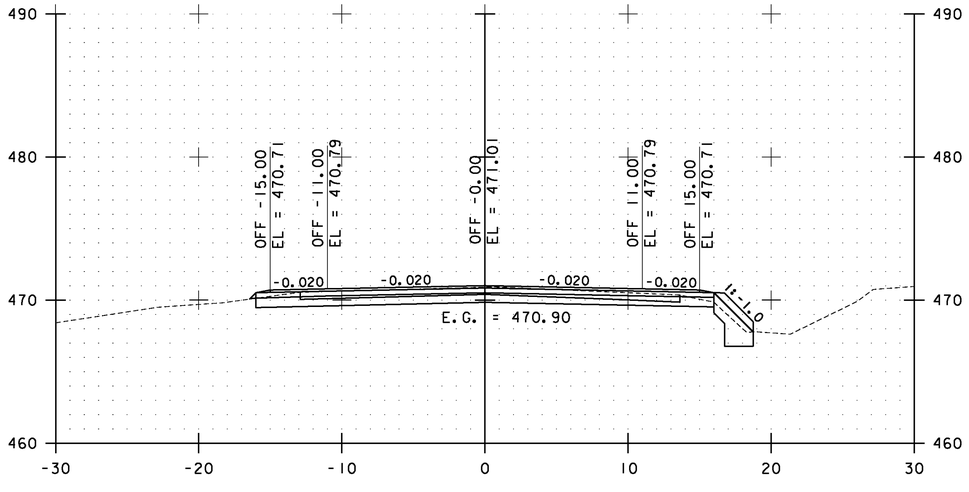
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs136.i

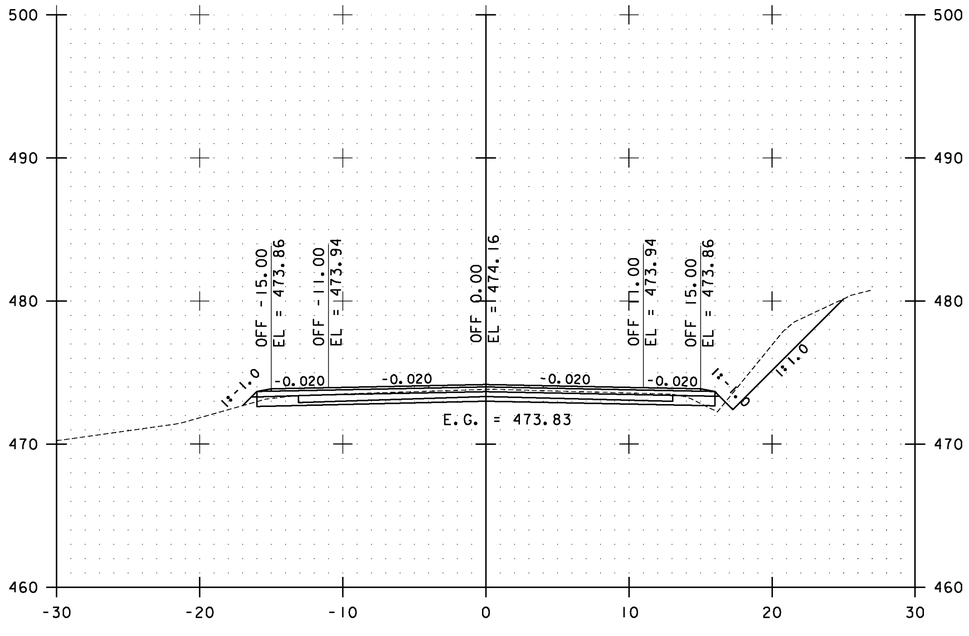
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 227 OF 239



51+00.00



50+50.00



51+50.00

STA. 50+50.00 TO STA. 51+50.00

0 10 20
SCALE

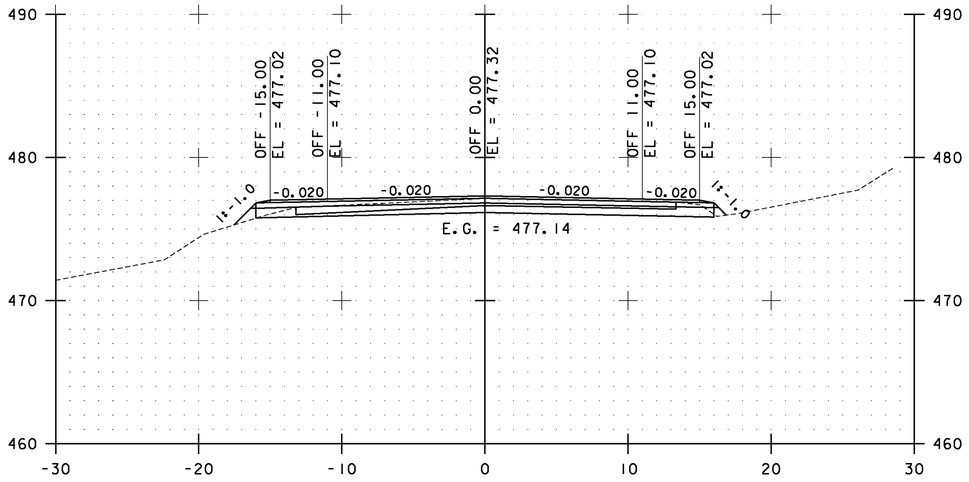
Stantec

WESTFORD CROSS SECTIONS SHEET #26

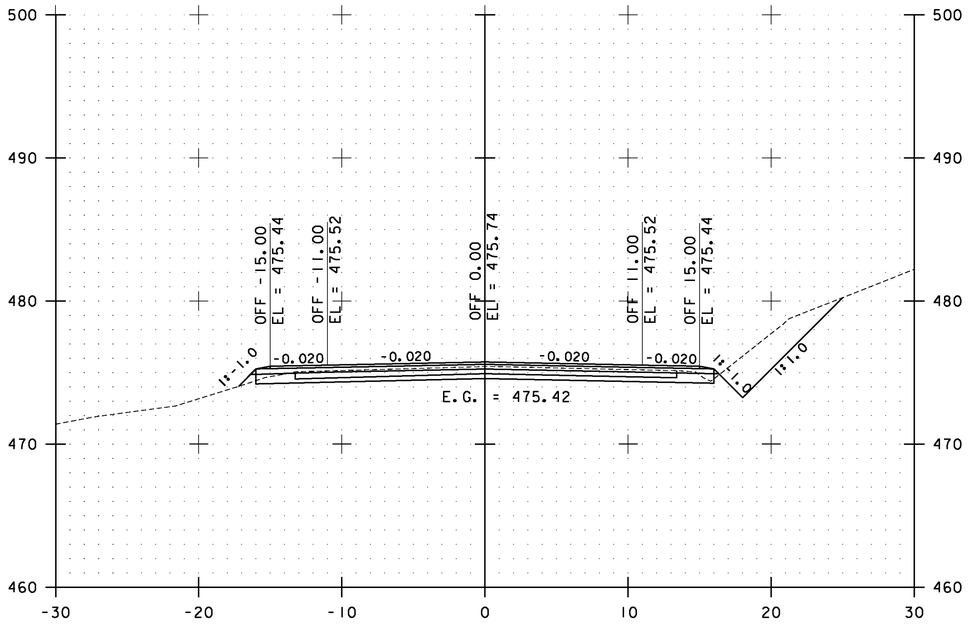
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs137.i

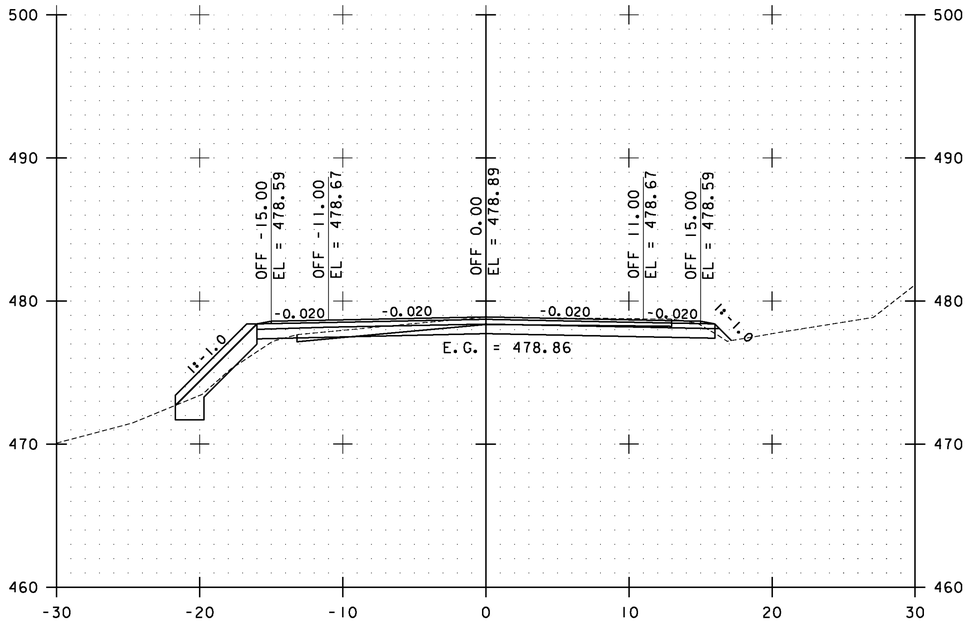
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 228 OF 239



52+50.00



52+00.00



53+00.00

STA. 52+00.00 TO STA. 53+00.00

0 10 20
SCALE

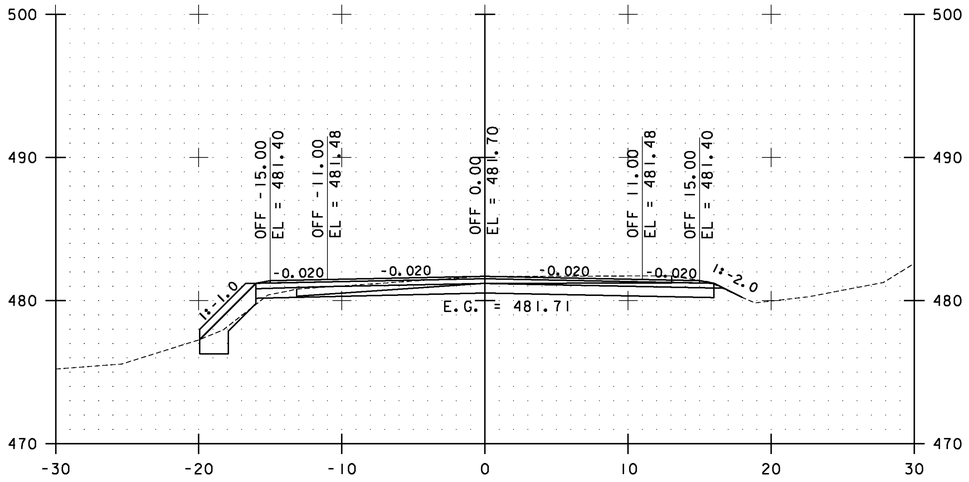
Stantec

WESTFORD CROSS SECTIONS SHEET #27

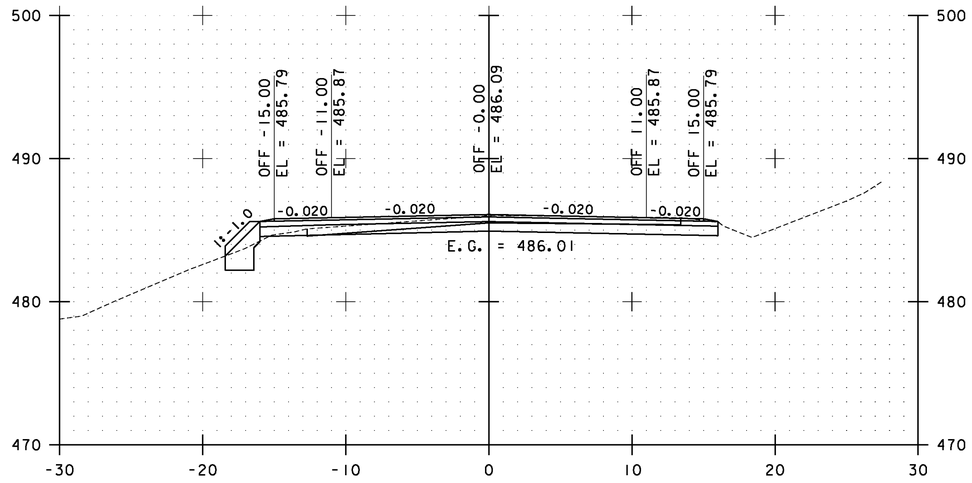
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(I)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs138.i

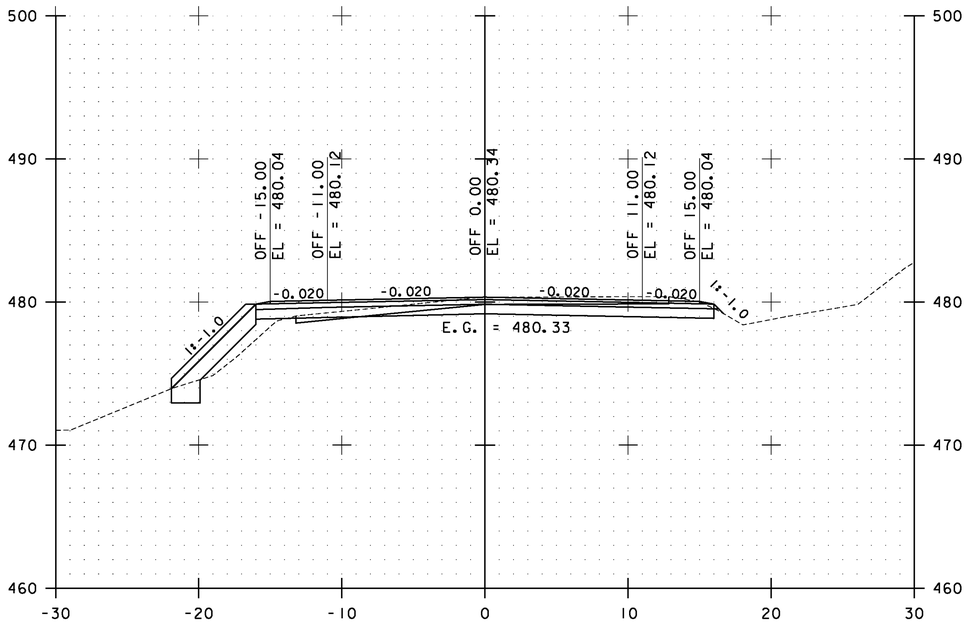
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 229 OF 239



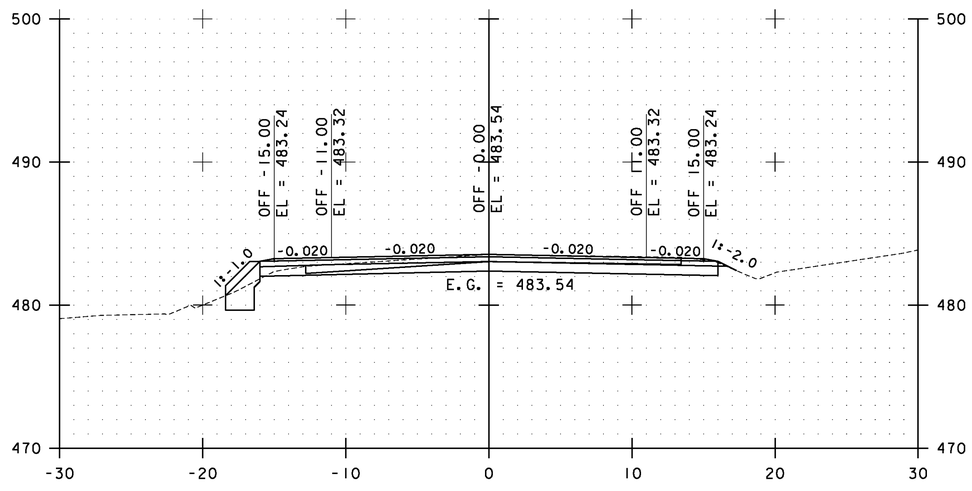
54+00.00



55+00.00



53+50.00



54+50.00

STA. 53+50.00 TO STA. 55+00.00

0 10 20
SCALE

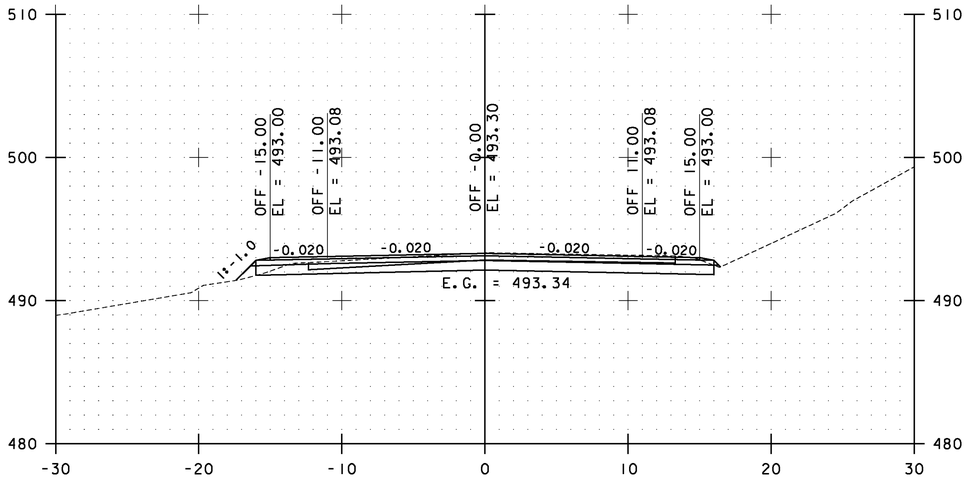
Stantec

WESTFORD CROSS SECTIONS SHEET #28

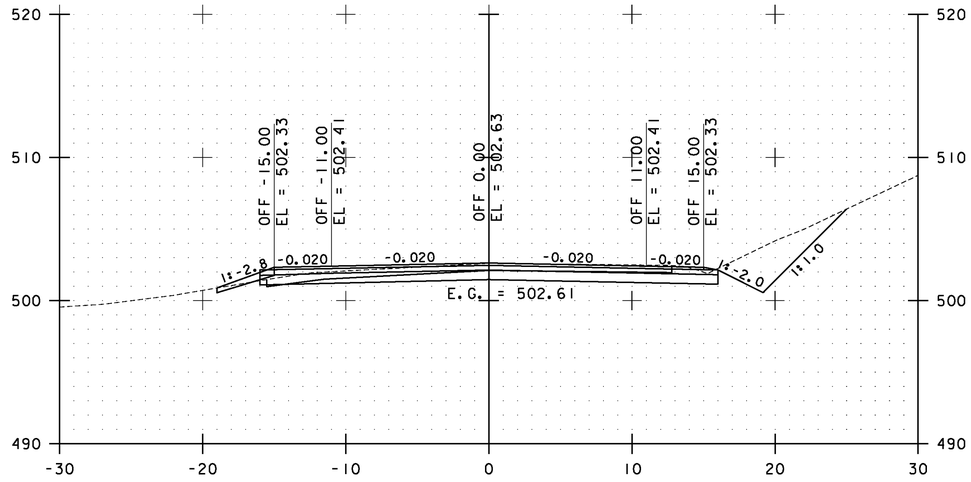
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs139.i

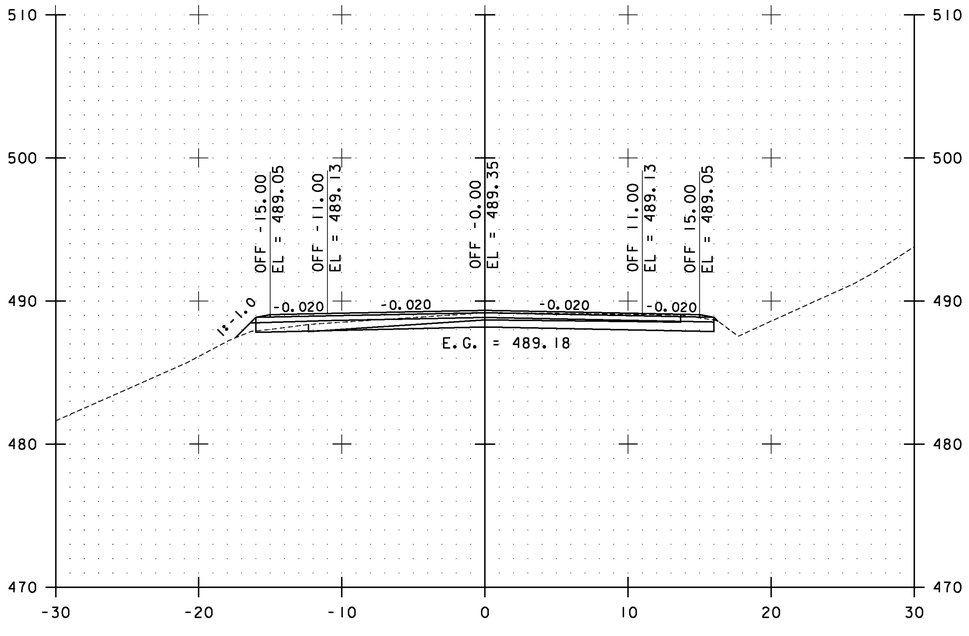
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 230 OF 239



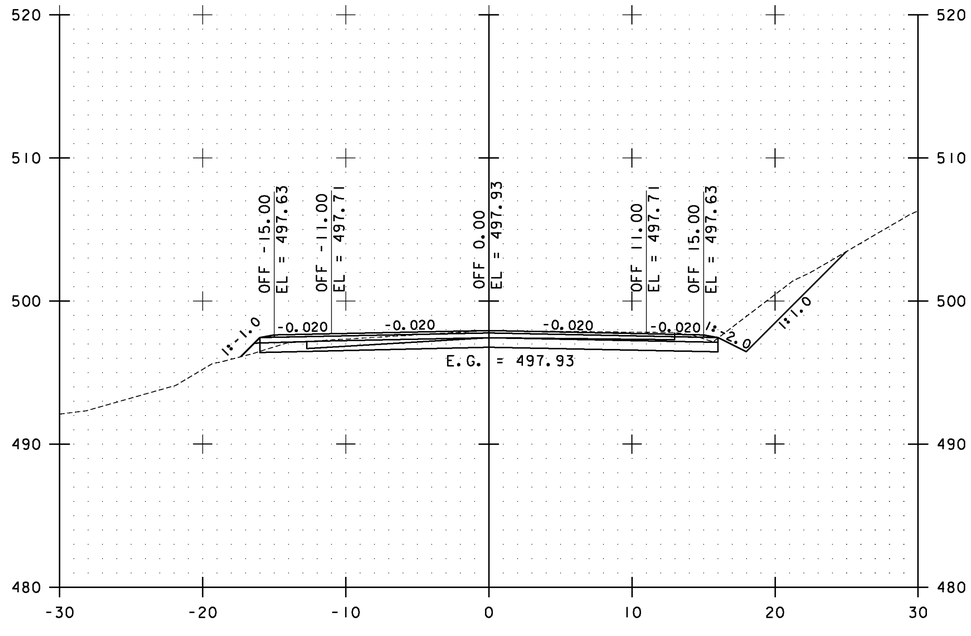
56+00.00



57+00.00



55+50.00



56+50.00

STA. 55+50.00 TO STA. 57+00.00

0 10 20
SCALE

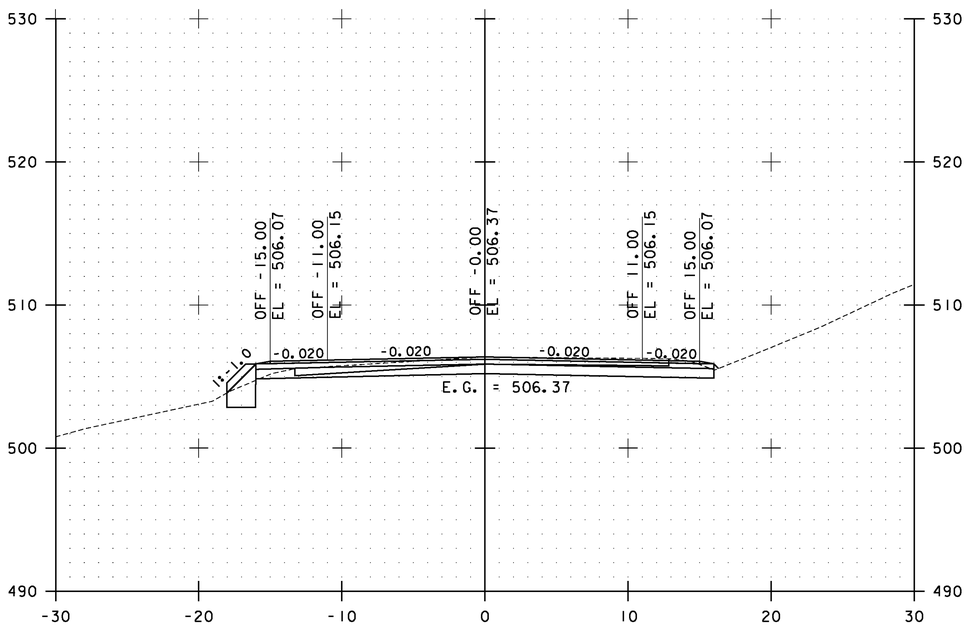
Stantec

WESTFORD CROSS SECTIONS SHEET #29

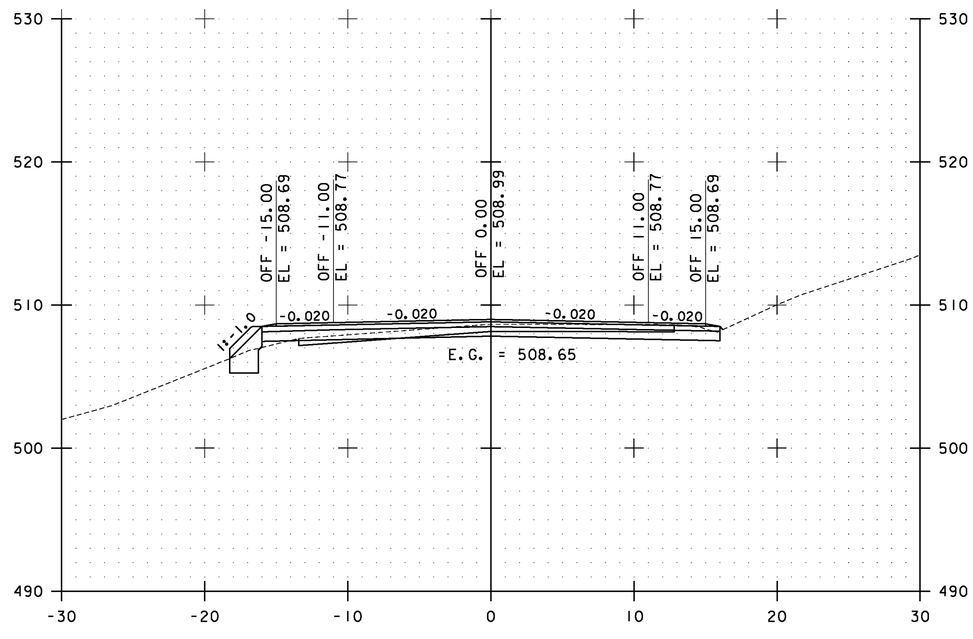
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs140.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 231 OF 239



57+50.00



58+00.00

STA. 57+50.00 TO STA. 58+00.00

0 10 20
SCALE

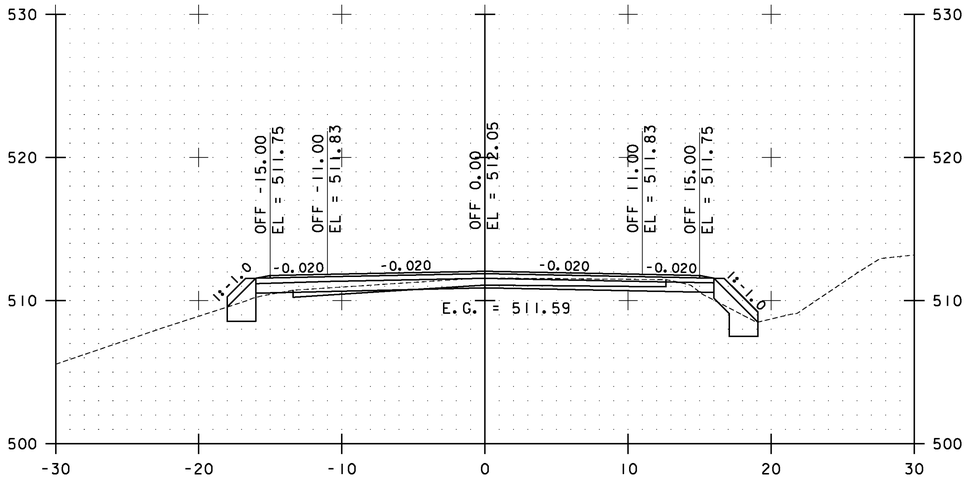
Stantec

WESTFORD CROSS SECTIONS SHEET #30

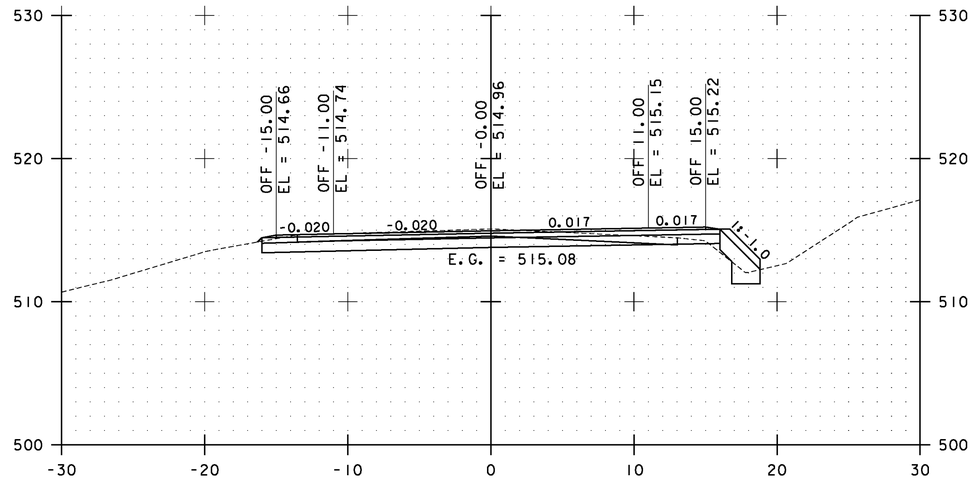
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs141.i

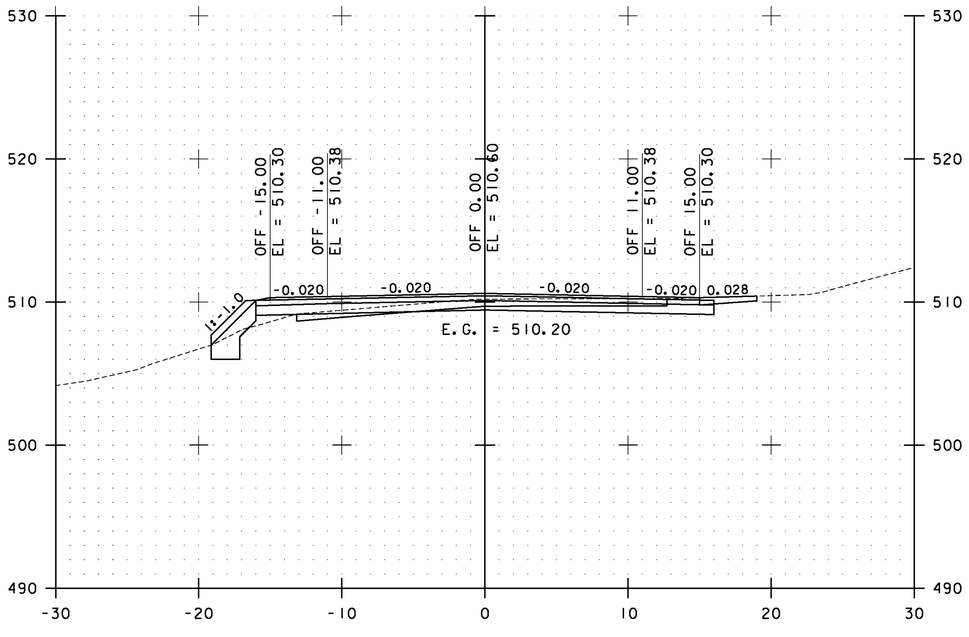
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 232 OF 239



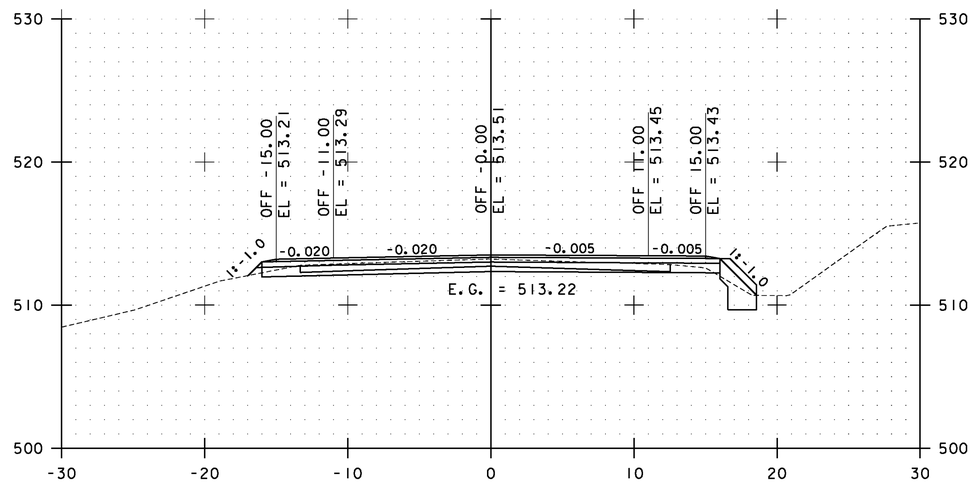
59+00.00



60+00.00



58+50.00



59+50.00

STA. 58+50.00 TO STA. 60+00.00

0 10 20
SCALE

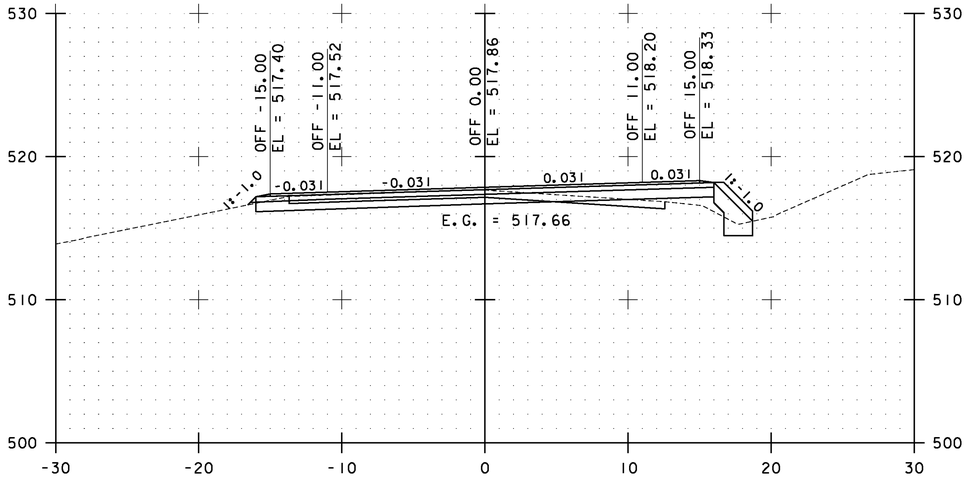
Stantec

WESTFORD CROSS SECTIONS SHEET #31

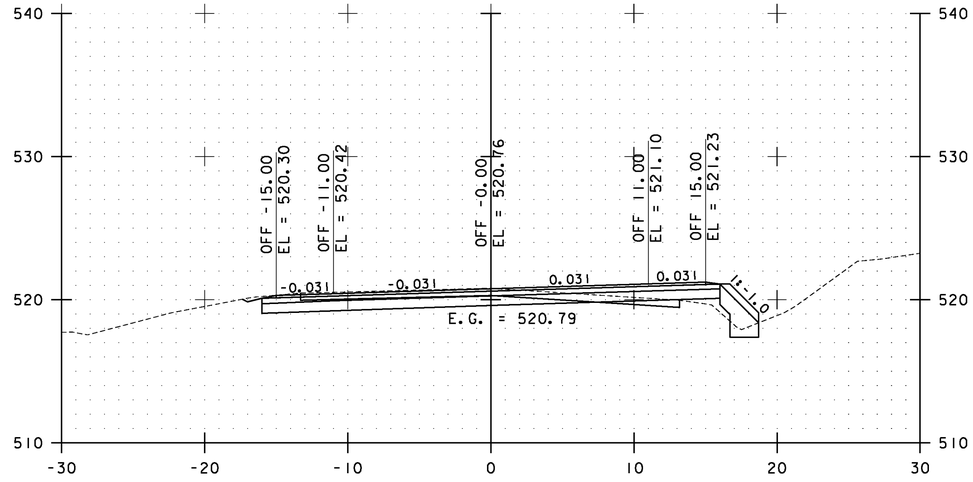
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs142.i

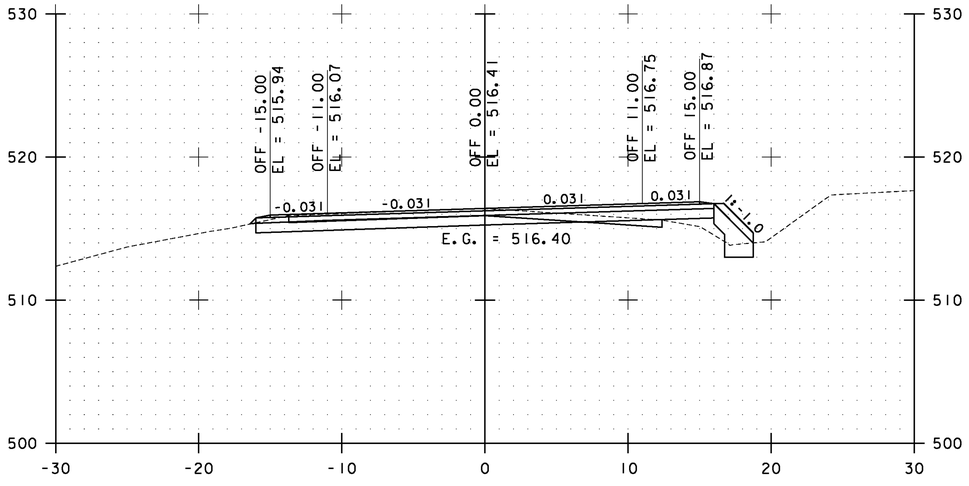
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 233 OF 239



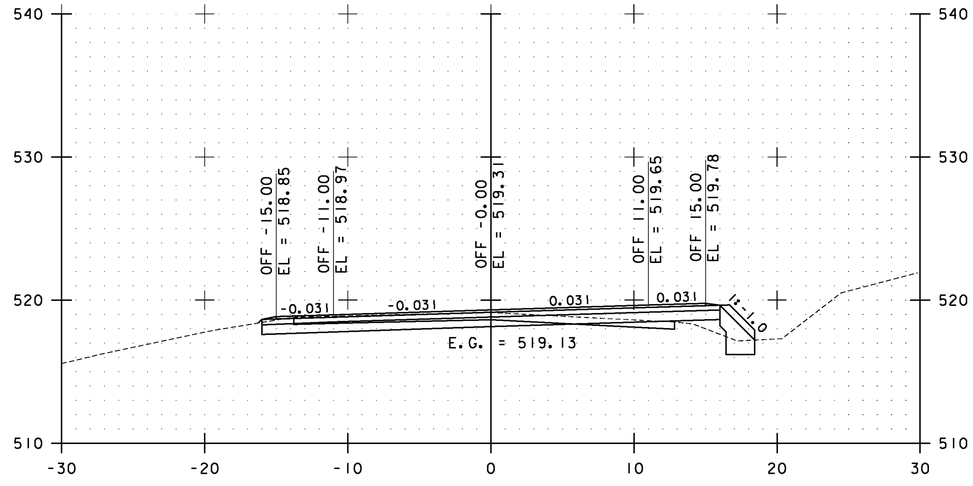
61+00.00



62+00.00



60+50.00



61+50.00

STA. 60+50.00 TO STA. 62+00.00

0 10 20
SCALE

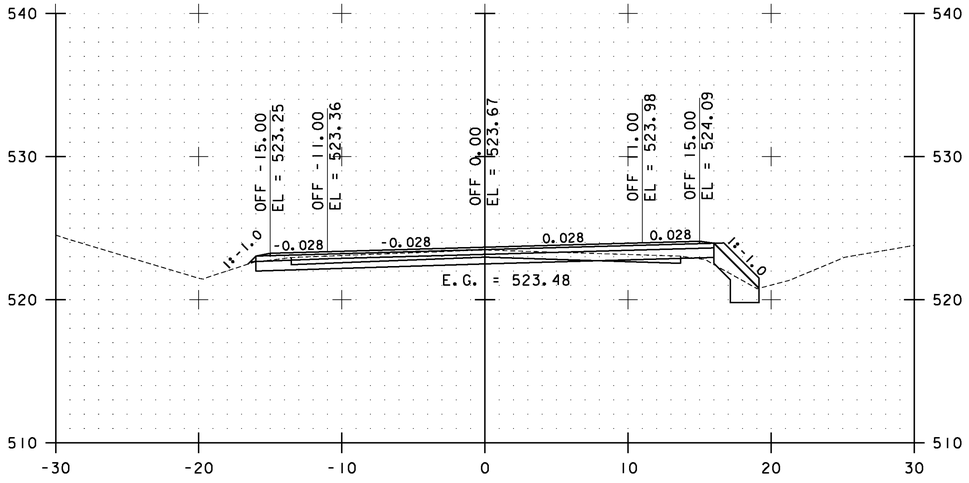
Stantec

WESTFORD CROSS SECTIONS SHEET #32

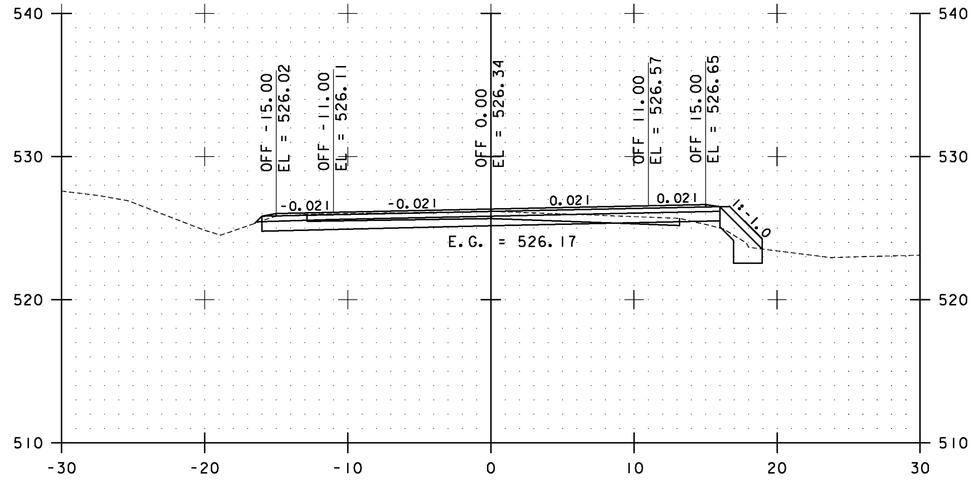
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs143.i

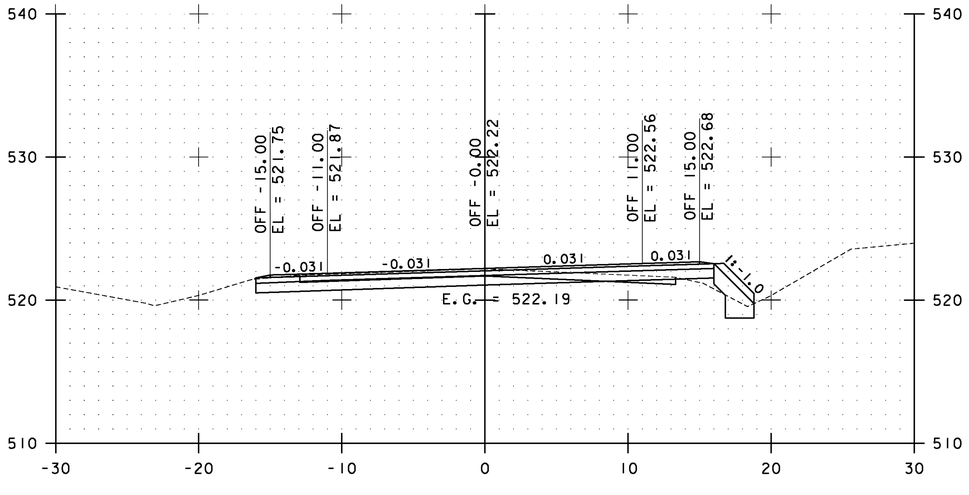
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 234 OF 239



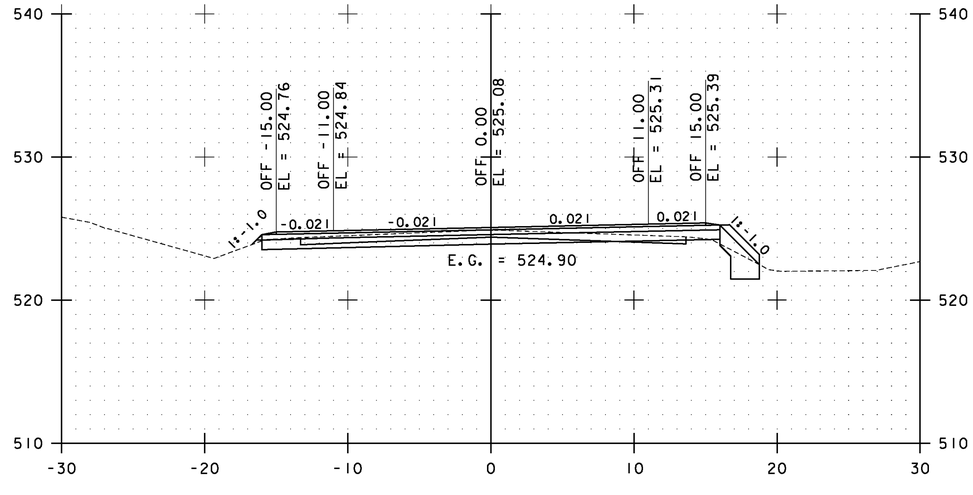
63+00.00



64+00.00



62+50.00



63+50.00

STA. 62+50.00 TO STA. 64+00.00

0 10 20
SCALE

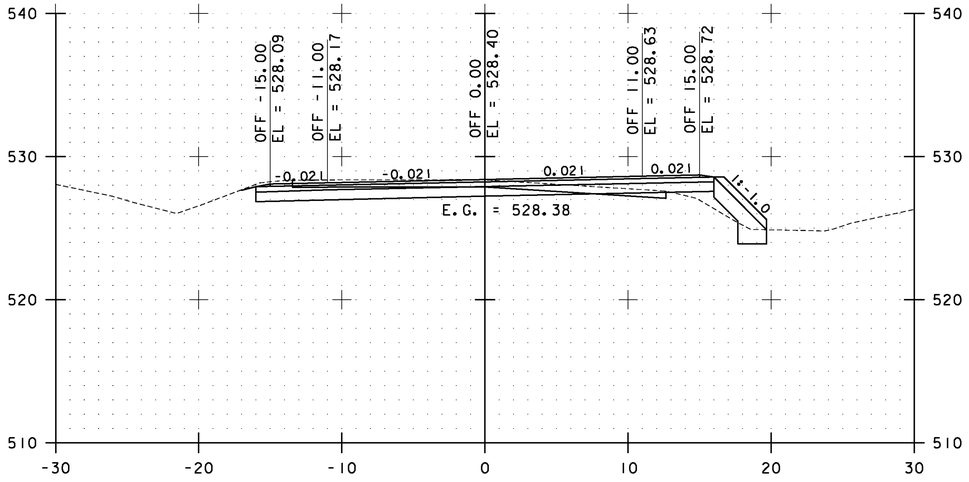
Stantec

WESTFORD CROSS SECTIONS SHEET #33

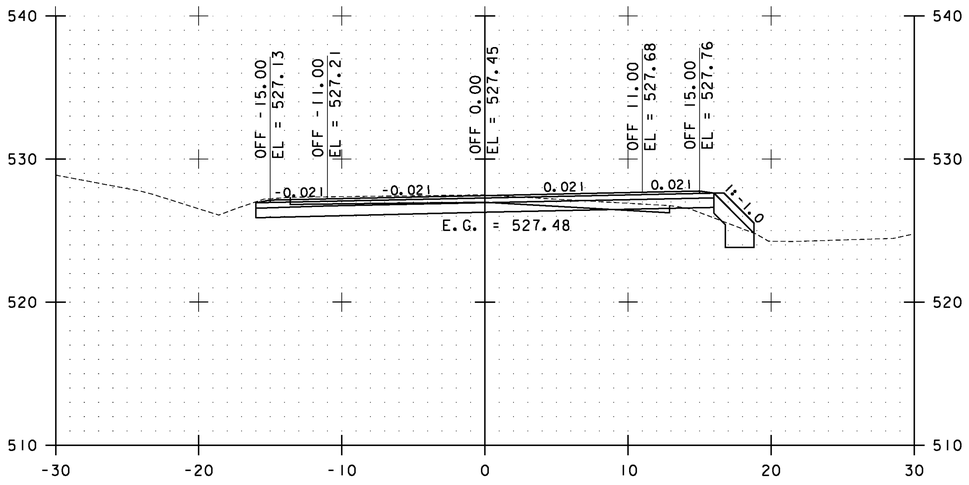
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs144.i

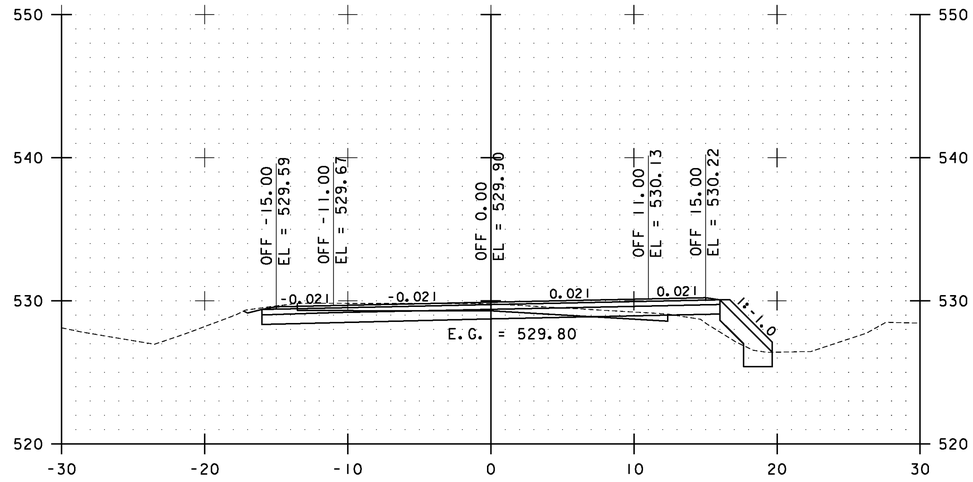
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 235 OF 239



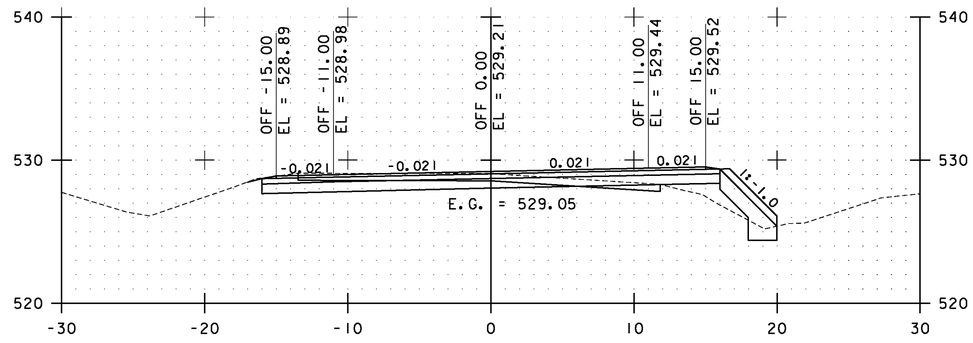
65+00.00



64+50.00



66+00.00



65+50.00

STA. 64+50.00 TO STA. 66+00.00

0 10 20
SCALE

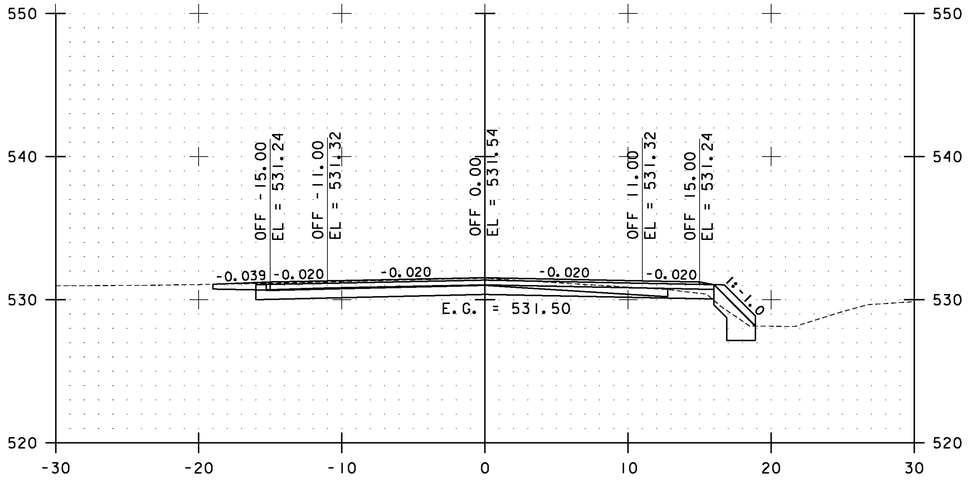
Stantec

WESTFORD CROSS SECTIONS SHEET #34

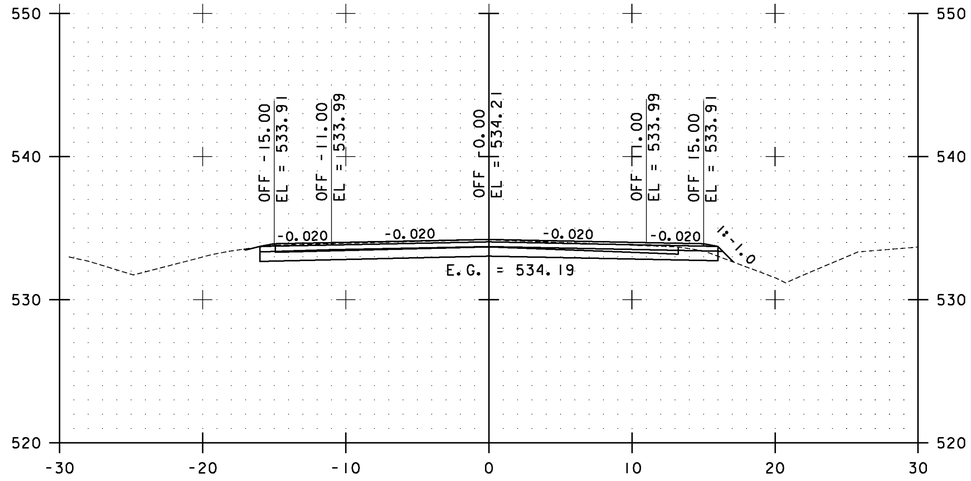
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs145.i

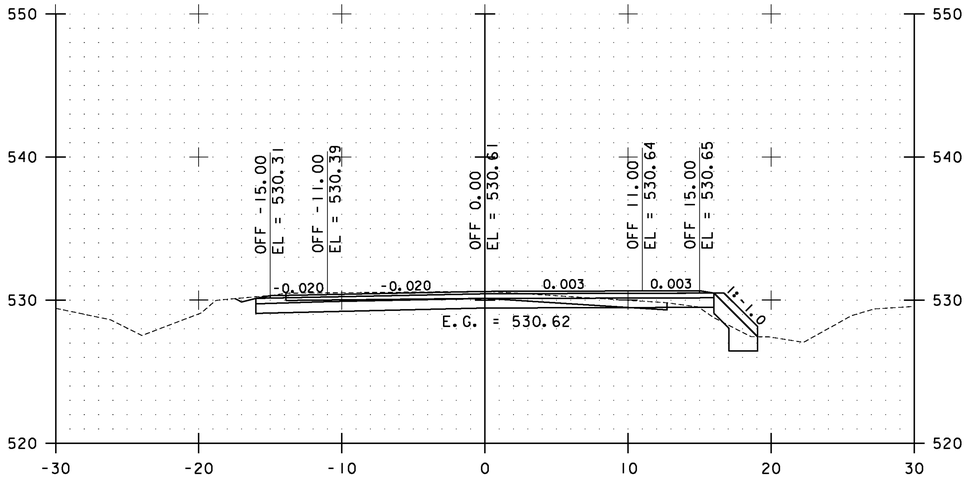
PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 236 OF 239



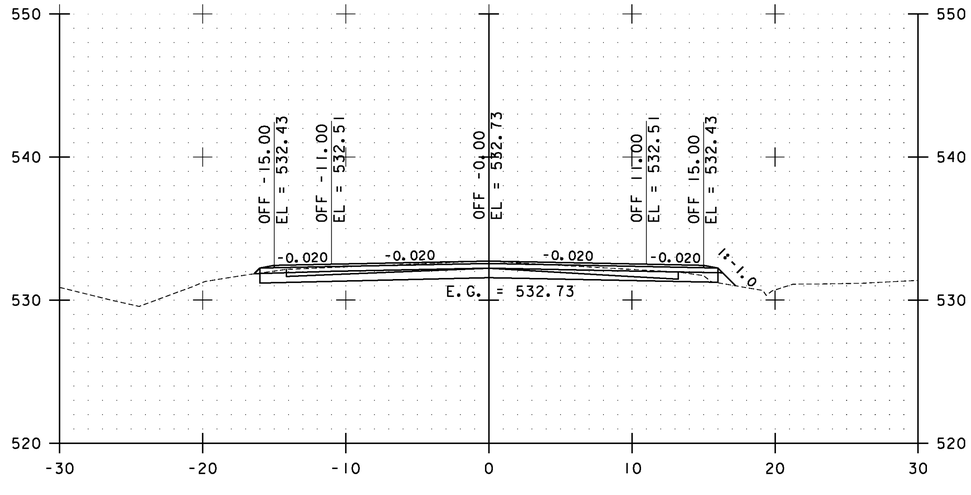
67+00.00



68+00.00



66+50.00



67+50.00

STA. 66+50.00 TO STA. 68+00.00

0 10 20
SCALE

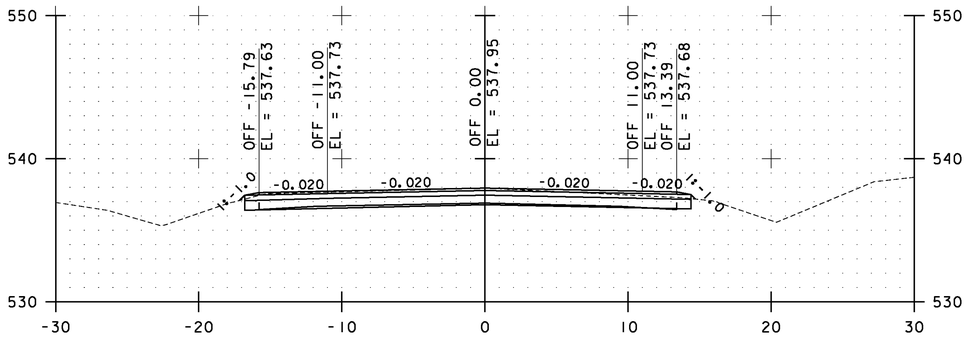
Stantec

WESTFORD CROSS SECTIONS SHEET #35

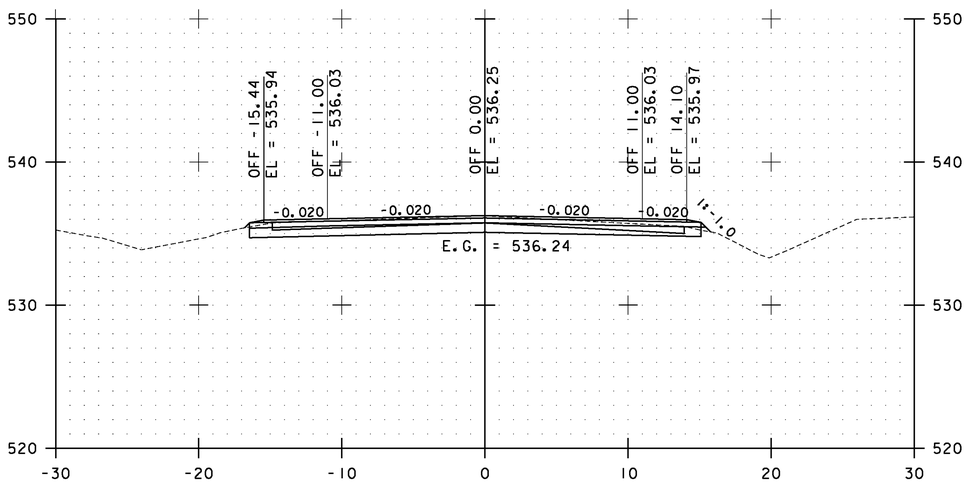
PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs146.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 237 OF 239



68+85.12 END STP 2912(1)



68+50.00

STA. 68+50.00 TO STA. 68+85.12

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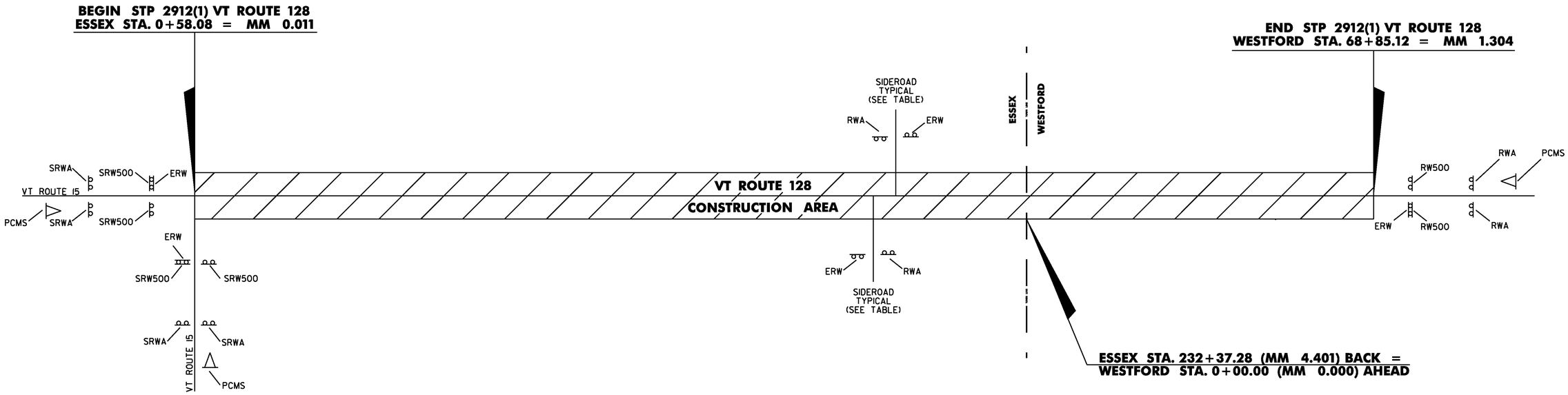
Stantec

WESTFORD CROSS SECTIONS SHEET #36

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
PROJECT LEADER: JLL
DESIGNED BY: STANTEC
IPARM FILE: p10c226xs147.i

PLOT DATE: 2/20/2013
DRAWN BY: STANTEC
CHECKED BY: STANTEC
SHEET 238 OF 239



NOTES:

1. THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL INCLUDE A CONSTRUCTION SIGN PACKAGE FOR EXPECTED LANE CLOSURES AND WORK ZONE SPEED REDUCTIONS IN COMPLIANCE WITH STANDARD E-103. THE COST OF PREPARING THIS PLAN (AND MAKING CHANGES IF NECESSARY) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.10, TRAFFIC CONTROL.
2. THE CONTRACTOR SHALL POSITION PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) WARNING MOTORISTS OF THE EXPECTED ROADWAY CONDITIONS AHEAD. THE MESSAGE TO BE DISPLAYED, AND THEIR PROPOSED LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER IN ADVANCE FOR APPROVAL. THE COST OF PROVIDING THESE MESSAGE SIGNS SHALL BE PAID UNDER ITEM 641.15, PORTABLE CHANGEABLE MESSAGE SIGN.
3. THE BID PRICE FOR TRAFFIC CONTROL, ITEM 641.10, SHALL INCLUDE BUT IS NOT LIMITED TO ALL OF THE FOLLOWING, AS NEEDED: APPROACH AND ON-PROJECT CONSTRUCTION SIGNING, PORTABLE FLASHING ARROW BOARDS, BARRIERS, BARRELS, CONES, BARRICADES, TEMPORARY REGULATORY AND WARNING SIGNS, AND POSTS AS DETAILED IN VAOT STANDARDS. ALL ADJUSTING, RELOCATING AND REMOVING OF THESE DEVICES AS DIRECTED BY THE ENGINEER SHALL ALSO BE INCLUDED.
4. THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE THE STANDARD FOR ALL TRAFFIC CONTROL DEVICES. EXISTING SIGNS AND MARKINGS SHALL BE VALID UNTIL SUCH TIME AS THEY ARE REPLACED OR RECONSTRUCTED. WHEN NEW TRAFFIC DEVICES ARE ERECTED OR PLACED, OR EXISTING TRAFFIC CONTROL DEVICES ARE REPLACED OR REPAIRED, THE EQUIPMENT, DESIGN, METHOD OF INSTALLATION, PLACEMENT OR REPAIR SHALL CONFORM WITH SUCH STANDARDS.
NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE, AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS. EXISTING SIGNS WHICH CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE COMPLETELY COVERED OR REMOVED.
5. SEE VAOT STANDARD E-100 FOR ADDITIONAL SIGN PLACEMENT DETAILS.
6. CONSTRUCTION ZONE SIGN LAYOUT SHALL BE IN ACCORDANCE WITH SECTION 6 OF THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. CONSTRUCTION SIGNS SHALL BE IN NEW OR LIKE NEW CONDITION PER VAOT STANDARDS AND SPECIAL PROVISIONS.
8. DIAMOND SHAPED SIGNS SHALL BE 4' X 4' WITH BLACK TEXT AND BORDER ON A RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
9. RETROREFLECTIVE SHEETING SHALL BE TYPE III OR VIII MINIMUM AS NOTED ON VAOT STANDARD E-100 AND IN SUBSECTION 750.08.
10. CONSTRUCTION ZONE SIGNS SHALL BE INSTALLED AS OUTLINED IN THE SPECIAL PROVISIONS.
11. WHERE TEMPORARY SIGNS ARE PLACED BEHIND GUARDRAIL, THEY SHALL BE ADJUSTED SUCH THAT THE BOTTOMS OF THE SIGNS ARE ABOVE THE TOP OF GUARDRAIL.
12. AS THE PAVING OPERATION MOVES, FLAGGER SIGNS SHALL BE MOVED ACCORDINGLY. AT NO TIME SHOULD THE FLAGGER SYMBOL SIGN BE MORE THAN 1000 FEET FROM THE FLAGGER STATION. FLAGGER SIGNS SHALL BE COVERED OR TURNED AWAY FROM TRAFFIC WHEN FLAGGING OPERATIONS CEASE FOR LONGER THAN 15 MINUTES.
13. BARRELS AND CONES SHALL BE USED TO CLEARLY DEFINE THE TRAVEL SPACE AND PROVIDE SEPARATION FROM THE WORK SPACE ALONG ITS ENTIRE LENGTH.
14. FOR LANE CLOSURES GREATER THAN 1/2 MILE LONG, PLACE ONE TYPE III BARRICADE ACROSS THE CLOSED LANE AT 1500 FOOT INTERVALS.

PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN THROUGH MOVEMENTS FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER, ON AT LEAST ONE SIDE OF THE STREET DURING CONSTRUCTION. ANY SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MUTCD, PART 6.
2. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES AND COMMERCIAL PROPERTIES AT ALL TIMES. THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.
3. IF SIDEWALKS ARE CLOSED, A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SHALL BE PROVIDED ON THE SAME SIDE OF THE ROAD AS THE CLOSED SIDEWALK, IF POSSIBLE. SIGNS AND BARRICADES SHALL BE USED TO PROVIDE ADVANCE NOTICE OF THE CLOSURE AND THE ROUTE OF ANY PEDESTRIAN DETOURS. THE TPAR SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4 FEET. IF THE TPAR IS LESS THAN 5 FEET IN WIDTH, A 5 FOOT BY 5 FOOT PASSING SPACE SHOULD BE PROVIDED AT LEAST EVERY 200 FEET. THE SURFACE OF THE TPAR SHALL BE SMOOTH AND CONTINUOUS FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTABILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIANS INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.
4. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP-OFFS, THEN CRASH WORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENTS OF THE MUTCD SHALL BE USED.
5. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT OR SIGNS IN THE PEDESTRIAN PATH OF TRAVEL.
6. THE CONTRACTOR'S OPERATIONS SHALL NOT OCCUPY SIDEWALKS EXCEPT WHERE PROPER PROTECTION AND TPAR HAVE BEEN PROVIDED.
7. THE CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN TRAFFIC CONTROL PLAN FOR REVIEW AND WRITTEN APPROVAL A MINIMUM OF THREE WEEKS BEFORE SUCH PLAN IS IMPLEMENTED. THIS PLAN SHALL DETAIL THE CONSTRUCTION PHASING, SCHEDULE AND THE SPECIFIC METHODS OF MAINTAINING SAFE PEDESTRIAN ACCESS THROUGHOUT THE CONSTRUCTION AREA. THIS PLAN SHALL PROVIDE THE LOCATION AND DETAILS OF TEMPORARY CONSTRUCTION SIGNING, MARKINGS, BARRICADES, CHANNELIZING DEVICES, TPAR'S AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC. PAYMENT FOR DEVELOPING, IMPLEMENTING, AND MAINTAINING THE TEMPORARY PEDESTRIAN TRAFFIC CONTROL PLAN WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10.

SEE VAOT STANDARDS E-100 AND E-100A FOR SIGN PLACEMENT.

LOCATION	ERW	SRW500	SRWA	RW500	RWA	▷
ESSEX						
VT ROUTE 128 @ VT ROUTE 15 (BEGIN PROJECT)	1	2	2			1
VT ROUTE 15	1	2	2			1
ALDER LANE (TH-718)	1				1	
BIXBY HILL ROAD (TH-714)	1				1	
IRENE AVENUE (TH-798)	1				1	
WEED ROAD (TH-63)	1				1	1
OSGOOD HILL ROAD (TH-51)	1				1	
PETTINGILL ROAD (TH-44)	1				1	
VT ROUTE 128 (END PROJECT)	1			2	2	1
TOTALS	9	4	4	2	8	4

LEGEND

ERW = END ROAD WORK
RW500 = ROAD WORK 500 FT
RWA = ROAD WORK AHEAD
SRW500 = SIDE ROAD WORK 500 FT
SRWA = SIDE ROAD WORK AHEAD
▷ = PORTABLE CHANGEABLE MESSAGE SIGN

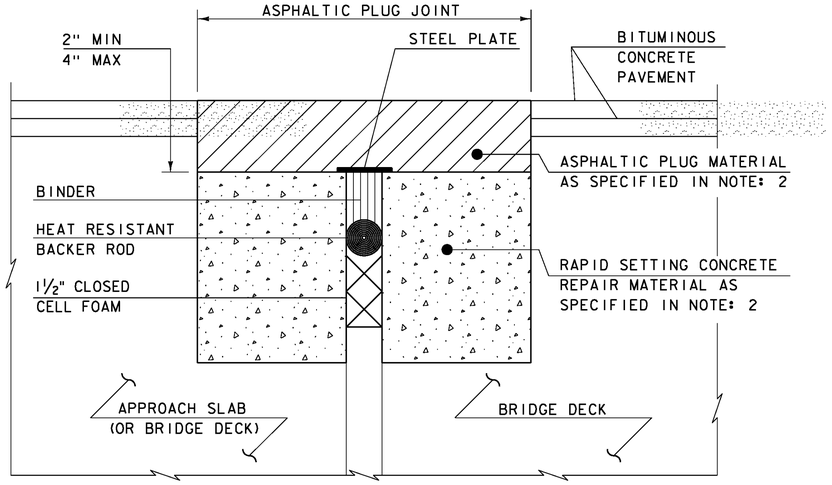
NOT TO SCALE

Stantec

CONSTRUCTION APPROACH SIGNING SHEET

PROJECT NAME: ESSEX-WESTFORD
PROJECT NUMBER: STP 2912(1)

FILE NAME: p10c226.dgn
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SHEET 239 OF 239



ASPHALTIC PLUG-TYPE JOINT DETAIL - REHAB

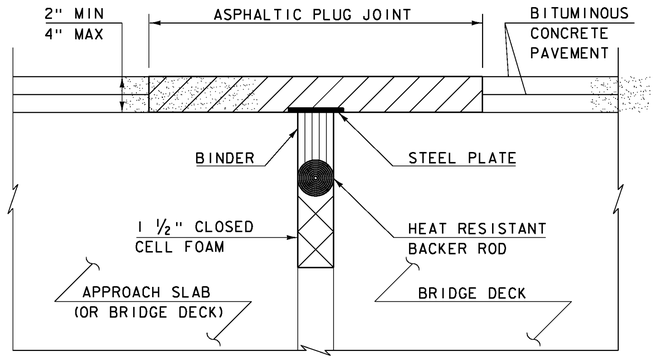
(NOT TO SCALE)

NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COURSE AGGREGATE.

2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

3. REINFORCING STEEL NOT SHOWN FOR CLARITY.



ASPHALTIC PLUG-TYPE JOINT DETAIL - NEW

(NOT TO SCALE)

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.

2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.

3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.

4. REPAIR MATERIAL GREATER THAN 4 INCHES FROM FINISHED GRADE WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

5. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.

6. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.

7. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.

8. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.

9. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

10. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

11. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.

12. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.

2. THE ROAD SURFACE IS DRY.

3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE JOINT
ASPHALTIC PLUG

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

STRUCTURES DETAIL
SD-516.10

DESCRIPTION OF WORK

-BETWEEN STATION 44+75 TO 53+25 LT THE ROADWAY OVERTOPS WITH FLOODWATERS SEASONALLY. THE DOWNSTREAM SIDESLOPE OF THE ROADWAY (STATION LEFT) ERODES. IN ORDER TO PREVENT THE SIDESLOPE FROM ERODING THE FOLLOWING MUST BE DONE:

-REMOVE 2" OF THE EXISTING TYPE III PAVEMENT 2' WIDE FOR ENTIRE LENGTH DOWN TO THE RECLAIMED STABILIZED BASE.

-PREPARE THE SLOPE BY GRADING AND FILLING WITH GRUBBBINGS MATERIAL ENSURING A SMOOTH SURFACE DOWN TO THE TOE OF SLOPE.

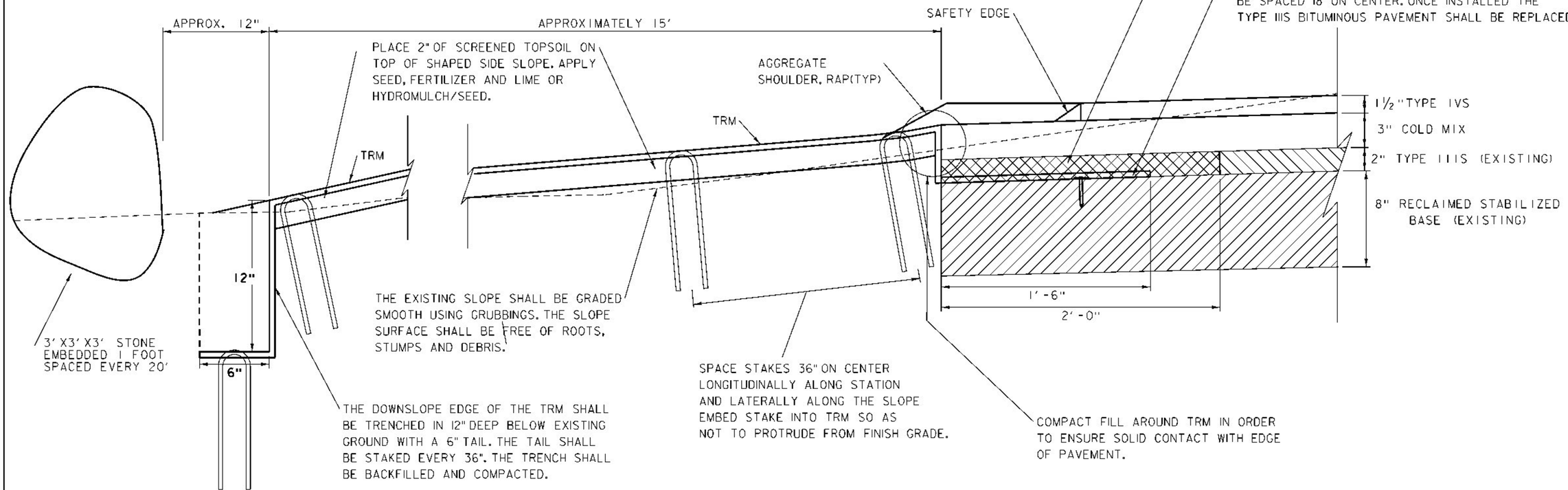
-PLACE 2" OF SCREENED TOPSOIL FROM THE EDGE OF PAVEMENT TO TOE OF SLOPE

-THE PREPARED SLOPE SHALL HAVE SEED, FERTILIZER AND LIME APPLIED AT THE RATE SHOWN IN THE DETAIL. THE SEED SHALL BE APPLIED AT THE PURE LIVE SEED RATE.

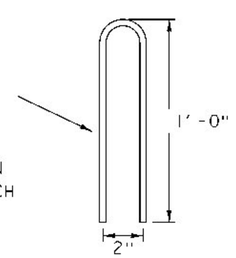
-INSTALL TURF REINFORCED MATTING (TRM) OVER A PREPARED SLOPE STATION LEFT EXTENDING 15' BEYOND THE EDGE OF THE RECLAIMED STABILIZED BASE. THE UPSLOPE EDGE AS WELL AS THE TOE OF SLOPE WILL BE SECURED AS SHOWN IN THE DETAIL BELOW. IF MULTIPLE ROWS OF MATTING ARE NECESSARY THE TRM SHALL BE OVERLAPPED A MINIMUM OF 12' AND STAKED EVERY 2' ALONG THE OVERLAP.
LISTED ARE SOME CHOICES OF TRM THAT CAN BE USED. IF AN ALTERNATIVE MODEL IS CHOSEN IT MUST MEET THE EROSION CONTROL TECHNOLOGY COUNCIL TYPE 5.B OR TYPE 5.C SPECFICATION:
 -NORTH AMERICAN GREEN- VMAX C350 TRM
 -EROSION CONTROL BLANKET- P42 TRM
 -EAST COAST EROSION BLANKETS- ECP-3 POLYPROPYLENE TRM

-INSTALL ONE 3'X3'X3' BOULDER EVERY 20 FEET ALONG TOE OF SLOPE KEYED IN 1FOOT.

VAOT LOW GROW/FINE FESCUE MIX			
	PURE LIVE SEED RATE LBS/AC		
WEIGHT	BROADCAST	HYDROSEED	NAME
38%	57	95	CREEPING RED FESCUE
29%	43.5	72.5	SPARTAN HARD FESCUE
15%	22.5	37.5	CHEWINGS FESCUE
15%	22.5	37.5	ANNUAL RYEGRASS
3%	4.5	7.5	INERTS
100%	150	250	



STAKES SHALL BE #3 REBAR 12" BY 2" BY 12". IF NECESSARY THEY SHALL BE INSTALLED BY MECHANICAL MEANS. NORTH AMERICAN GREEN MANUFACTURERS STAKES SUCH AS THESE.



ESSEX-WESTFORD STP 2912(I) ROADWAY OVERTOPPING
STA 44+75 TO 53+25 LT
(NOT TO SCALE)

CREATED BY WILLIAM FARLEY 06/04/2014

TRAFICON USA
TRAFFIC VIDEO DETECTION

VIP3D.xs

Vehicle Presence Detection & Data Collection

Single slot direct plug-in module for type 170, 2070, NEMA TS1 & TS2 and ATC controllers



Single slot module VIP3D.2 s

VIP3D.xs is a video detection solution that provides vehicle presence information to the intersection controller. VIP3D.xs integrates vehicle presence detection and traffic data collection in one module and provides a cost-effective and powerful solution for intersection control.

As a single slot module, VIP3D.xs plugs into all standard cabinet racks. The VIP3D.xs module interfaces directly to the controller via cable-connected outputs.

Configuration of VIP3D.xs is straightforward, a PC is not required. The technician connects a video monitor for a user-friendly setup with visualization of zone positioning and detection.

Zones for stop bar or advance presence detection can be combined logically to the fail-safe outputs.

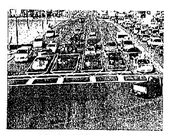
VIP3D.xs provides all relevant traffic data and distinguishes between 6 levels of service for flow monitoring. VIP3D.xs emulates traditional double or single loop detectors.

FEATURES

- Stop bar and advance vehicle presence detection for intersection control
- Up to 24 presence detection zones and 8 data collection zones for VIP3D.1s (up to 20 presence zones and 4 data zones per camera for VIP3D.2s)
- Presence call delay and/or extension
- Fail-safe outputs
- Up to 24 cable-connected outputs and 20 inputs via I/O expansion modules
- Traffic data collection
  - ✔ Count
  - ✔ Speed
  - ✔ Classification
  - ✔ Occupancy
  - ✔ Density
  - ✔ Headway
  - ✔ Gap time

BENEFITS

- Single slot direct plug-in module, dual or single video input, rack space saving board
- Field-proven performance, presence detection and data collection identical to VIP3.x and VIP/D
- Easy to install, user-friendly setup, high mean time between failures (MTBF) and low mean time to repair (MTTR)



Stop bar vehicle detection

VIP Color Camera

2050-102MI

CONTROL TECHNOLOGIES

The 2050-102MI color camera assembly is the "eye" of the Traficon "VIP" Video Detection System.

Housed in an extraded aluminum, weatherproof IP68/ NEMA-6P enclosure, the 2050-102MI camera provides clear, high resolution video in all weather conditions. Located in the front of the housing, an integrated heater minimizes fogging of the housing window in high humidity areas as well as freezing in cold conditions.

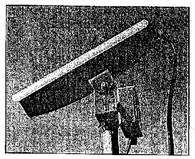
The sunshield extends beyond the front of the housing window to reduce the effects of sunlight & heat and also acts as a diversion for water.

The camera and lens utilize the latest imager chip sets to reduce blooming from vehicle headlights at night. The lens is motorized and ranges from 6.5mm to 65mm. Wider lenses are also available.

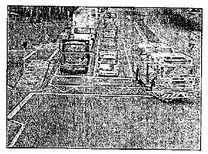
Advanced features of the camera include the capability to change between color, day/night and monochrome. The camera features "wide dynamic" to aide in difficult lighting area such as underpasses and between buildings. A self-resetting diode on the camera's power board minimizes system down time due to transients.

The most popular feature of the assembly is the integrated junction box. The junction box ships as a standard option and already contains video, power and zoom/focus lens control wiring. Installers simply run our Siamese cable from the cabinet and terminate the connections inside the junction box.

The entire assembly ships with the housing, camera/ lens, pan/tilt bracket, junction box and camera wiring. It attaches to mast arm, luminaire arm or side-of-pole camera mounting brackets.







Highway Traffic Signal Equipment Sales, Inc.
8 Shallow Road / P.O. Box 5128
Gorham, ME 04038
Tel. (207) 375-6269
Fax (207) 375-6278

VIP Camera Assembly

2050-102MI

CONTROL TECHNOLOGIES

Camera Specifications-

Image Sensor:
Interline 1/3" Sony Super HAD II CCD™

Effective Pixels:
768 (H) X 494 (V)

Horizontal Resolution:
540 TV Lines

Min. Illumination:
0.1 lux

Temperature Range:
-34°C to +74°C, 0 to 100% relative humidity, non-condensing

Lens Specifications-

Image Format:
1/3"

Focal Length:
Motorized- 6.5mm to 65mm (40.5° to 4.2°)

Iris:
F1.4 to 360

Junction Box Specifications-

Construction:
Rigid PVC, certified to NEMA 1, 2, 3, 4, 4x, 6P, 12, 13
UL514B– UL514C

Connections:
Edco surge protector BNC & 6-conductor, (shipped with assembly inside the junction box)

Camera Housing Dimensions

Sunshield

Junction Box Dimensions

Zoom lens control at the cabinet!
When using our standard "Siamese" video & coaxial cable, the camera's motorized zoom lens can be controlled from the convenience and safety of the traffic control cabinet.



Pictured: Siamese Cable & CT Zoom Lens Controller

Housing Specifications-

Construction:
Extruded aluminum housing, aluminum rear-end cap, aluminum front cap with glass faceplate, and aluminum cradle (6063-T6)

Mounting:
Three (3) 1/4-20 tapped holes. Cradle may be rotated through 360°

Window:
0.118" (3 mm) thick glass. Includes thermostatically-controller window heater/ defogger

Temperature Range:
-34°C to +74°C, 0 to 100% relative humidity, non-condensing

Cable Entry:
Three liquid-tight fittings

Salt Atmosphere:
MIL-STD-810E, Method 509, Procedure I

Enclosure Protection:
IP68, Designed to meet NEMA-6P

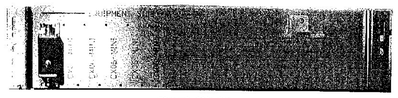
Power:
115 VAC, 50/60 Hz
13 Watts (Includes 4 Watt Heater)

Sunshield:
Provides protection from the direct rays of the sun and promotes cooling to reduce internal housing temperatures

VIP Camera Interface Panel

For 1 to 6 cameras

The Traficon Camera Interface Panel (CIP) provides power and transient voltage suppression for the video detection system.



Pictured: 2285-121





- **DIMENSIONS:** 170 CIP: 19" X 4" NEMA CIP: 14" X 6"
- **CONSTRUCTION:** 5052 Aluminum
- **POWER:** Multi 9 System (C60), Mini Circuit Breakers, 120 VAC, 3 amp/camera
- **VIDEO:** Edco CX06-M "Mini" Suppressor

Model	Description	Model	Description
2285-121	170 CIP for 1 Camera	2285-101	NEMA CIP for 1 Camera
2285-122	170 CIP for 2 Cameras	2285-102	NEMA CIP for 2 Cameras
2285-123	170 CIP for 3 Cameras	2285-103	NEMA CIP for 3 Cameras
2285-124	170 CIP for 4 Cameras	2285-104	NEMA CIP for 4 Cameras
2285-125	170 CIP for 5 Cameras	2285-105	NEMA CIP for 5 Cameras
2285-126	170 CIP for 6 Cameras	2285-106	NEMA CIP for 6 Cameras

Highway Tech Signal Equipment Sales, Inc.
6 Sabattus Road, P.O. Box 1209
Sabattus, ME 04280
Tel. (207) 375-8248
Fax (207) 375-8279
info@highwaytech.com

VIP3D.1s and VIP3D.2s

PRODUCT SPECIFICATIONS

Dimensions
4.5 in H x 1.1 in W x 7.0 in L (114 mm x 28 mm x 178 mm)

Power
10.8v to 28.5 VDC
Consumption, current
- 200 mA @24 V for VIP3D.2 s
- 150 mA @ 24 V for VIP3D.1 s

Video
In: 75Ω 1Vpp, PAL or NTSC
Out: via BNC connector - front

Outputs / Inputs
4 outputs (open collector, selectable active low or high)
Up to 24 outputs/20 inputs via expansion modules

Communication
Serial port - front for setup
RJ11 connector – front to the expansion modules
Double row 22 pins EDGE (NEMA TS2-1992) connector – back
Push button – front for reset/recall

Indicators
LED for connection to I/O Expansion modules
Power LED, Video in LED
LED for the communication status
LEDs for the outputs status

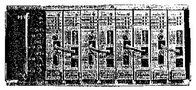
Environmental
-34ºC to +74ºC.
0 to 95% relative humidity - non-condensing

VIDEO DETECTION SOLUTION – SYSTEM ARCHITECTURE

In a typical installation, the VIP3D.xs detector modules (single or dual video input) are plugged into a standard cabinet rack.

A VIP 2I/Os or 4I/Os expansion module may provide extra inputs and outputs to the detector.

VIP3D.xs interfaces directly to the traffic controller via cable-connected outputs.



Rack with VIP3D.2s and 4I/Os expansion modules

PRESENCE DETECTION

- Stop bar or advance detection on up to 24 presence zones (up to 20 zones per camera for VIP3D.2s)
- Zones configurable with delay and extend time
- Up to 24 fail-safe detector outputs
- Up to 20 inputs
- Combination of outputs and inputs with Boolean logic
- Queue length measurement
- Configuration scheduling

DATA COLLECTION

- Count, speed, classification, occupancy, density, headway and gap time
- Up to 6 data collection zones (up to 4 zones per camera for VIP3D.2s)
- Traffic flow monitoring
- Configurable on-board database
- Loop emulation

Highway Tech (Saint Quisteon Sales, Inc.
8 Gardena Blvd P.O. Box 3180
Rockport, TX 78381
Tel. (800) 978-3219
Fax (800) 978-3279

Data subject to alteration without notice or obligation

WESTERN USA: Kar-Gor Inc – 2756 19th Street, S.E. – Salem, OR 97302 – Phone: 503 315-9899 – E-mail: kargor@aol.com
TRAFFICON USA: 10161 Park Run Drive, Suite 150 – Las Vegas, NV 89145 – Phone: 702 851-5860 – E-mail: trafficon@trafficonusa.com
EASTERN USA: Control Technologies Inc – 2776 South Financial Court – Sanford, FL 32773 – Phone: 407 330-2800 – E-mail: ctraffic@aol.com

Naztec, Inc.
ATMS Solutions

VU COM



VU COM FUNCTIONALITY

By establishing communication between the PC software on the central computer and the Video Image Processor (VU) detectors, the VU COM board performs all primary functions for communication and transmission of traffic data and alarm events issued by the VU detectors. VU COM also stores video sequences (with pre-and post incident information).

REMOTE ADMINISTRATION USING YOUR INTERNET BROWSER

Using a standard Internet browser, the VU COM board can easily be managed over the TCP/IP (Ethernet) network, thereby facilitating remote administration. For both diagnostics and administration, the dynamic HTML pages provide access to a number of functionalities such as streaming video, real-time traffic data reports and set-up of the VU COM and VIP boards.

In addition to these primary functions, the VU COM board also performs the digitization and compression of images, provides remote monitoring and has the ability to change the configurations of all VIP boards. Users can execute a complete set-up, modify detection zones and check the result on the screen, right from their desk. All of these features make VU COM stand out as a perfect tool for traffic analysis.

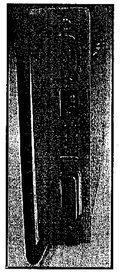
KEY BENEFITS

- Transmission of data, alarm events and images
- BIU interface through VU BIU
- Remote monitoring of the VIP boards. Up to 6 cameras for VU 1 and 12 cameras for VU 2.
- Video sequence with pre- and post incident information.
- Password protected, remote set-up or modification of configuration parameters.
- Ethernet communication (IP addressable) AND RS232 communication on the same board.
- Ethernet makes multiple host connections possible for redundancy purposes.
- A standard internet browser connects to the VU COM to monitor and set-up the video detection installation.
- Easy set-up, similar to the VIP boards.
- Direct plug-in module for NEMA TS1 & TS2, Type 2070, controller cabinets

820 Park Two Drive Sugar Land, TX 77478 (281) 240 7233
www.naztec.com naztec@naztec.com
Additional offices in Florida, New York and Virginia

Naztec, Inc.
ATMS Solutions

VU BIU



VU BIU FUNCTIONALITY

The Naztec VU BIU provides a TS2 SDLC interface for Traficon VU camera processors. Any detection zone can be assigned to any of the 64 available TS2 detection channels. Multiple zones may even be applied to the same channel. Each channel maps directly to the 64 detection channels provided by standard TS2 Detector BIUs.

It operates by allowing a Traficon VU COM to provide the detection states via the EIA-232 interface. The VU BIU then assigns the detection information to the appropriate TS2 SDLC Detector BIU message, which is provided as a response to polling by the traffic controller. The VU BIU can be configured to emulate any of the 4 Detector BIUs simultaneously.

Dimensions
- TS-2 compatible card rack units

Inputs
- 64 Detector Inputs via Traficon VU Protocol

Connector
- Double row 22 pins EDGE

Power Supply & Consumption
- 18-26 VDC•200 mA
- Can be inserted with Power Applied

Environmental
- -29°F to +165°F (-34°C to +74°C)
- 0 to 95% relative humidity – non-condensing

BIU Selection Switches
- Selects TS2 Detector BIUs to emulate
- Operates as 1 to 4 BIUs simultaneously

Port 1 Specifications
- EIA-485 Standard Compliant

153.6 Kbps Data Rate
- SDLC Protocol

EIA-232 Port Specifications
- EIA-232 Standard
- Traficon VU Protocol

Power LED Indicator Details
- Slow Blink Indicates Inadequate 24VDC Power Level
- Solid On Indicates Proper Power and Operation Solid Off Indicates No Power

TX2/RX2 LED Indicators
- RX2 blinks upon reception of Traficon VU message
- TX2 blinks upon transmission of Traficon VU message

TX/RX LED Indicators
- RX blinks upon reception of TS2 SDLC message
- TX blinks upon transmission of TS2 SDLC message

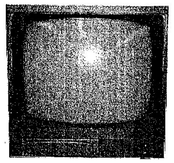
Highway Tech Signal Equipment Sales, Inc.
6 Sebattus Road, P.O. Box 1269
Gardiner, ME 04339
Tel. (207) 315-8426
Fax (207) 375-9210
info@highwaytech.com

820 Park Two Drive Sugar Land, TX 77478 (281) 240 7233
www.naztec.com naztec@naztec.com
Additional offices in Florida, New York and Virginia

Direct
brand equipment

Highway Tech

DVM-BW9B
9" B&W Monitor



Specifications

Resolution:	900 TV Lines
Bandwidth:	10MHz (-3dB)
Video Input:	Composite Video 1.0Vpp
Video Output	Composite Video 1.0Vpp, Loop through
Input Power:	AC100~240V 50/60 (Auto)
Video Connectors:	BNC in x 1/ out x 1
Input Impedance	Hi/ Low impedance, switchable
Consumption:	25W max.
Operation Temperature	14°F to 122°F
Physical Dimension:	8.7" x 9.25" x 9.92" (WxHxD)
Weight	12.32lbs

Highway Tech Signal Equipment Sales, Inc.
8 Gardiner Road / P.O. Box 1209
Sabattus, ME 04280
Tel. (207) 375-8248
Fax (207) 375-8279

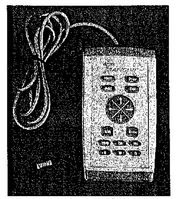
TRAFICON®
Video Detection. Field proven. Easy to install.

DATA SHEET

VIP SET-UP KEYPAD

Ref. Nr. 10.0021

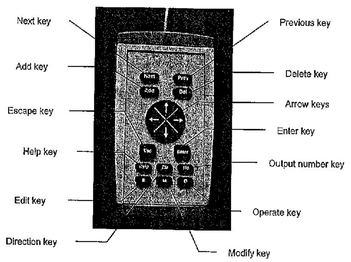
- ✓ *The SET-UP KEYPAD is designed to initialize VIP boards. It must be linked with the RS232C input connector to load the system commands into the VIP board memory.*
- ✓ *To initialize the VIP boards, the video out of the board is connected to the video in of the monitor. The keypad is connected to the service port of the VIP board.*



Specifications

Dimensions	• Width 75 mm • Depth 26 mm • Height 130 mm
Weight	• 0.37 Kg
Data format	• Serial data format RS232C Auto repeat 20 Hz after 0.5s delay
Power Supply	• Takes 3.3 - 5VDC from serial connector - 5mA (max)

Mercatorstraat 44/02, B-3061 Leefdaal, Belgium – tel +32 (0)16 37.22.00 – fax +32 (0)16 37.21.56 – traficon@traficon.com – www.traficon.com



Functions

Arrow keys	• To scroll through a menu. • To scroll through the values of a parameter. • To select a submenu.
Enter key	• To enter a menu, a submenu or an item within a submenu. • To edit a value for a parameter and confirm.
Escape key	• To exit the menu or submenu.
Next key	• To proceed to the next detection line or zone.
Previous key	• To move to the previous detection zone or line.
Add key	• To add a detection zone or line.
Del key	• To delete a detection zone or line.
Direction key	• To make a zone direction sensitive.
Help key	• To display help text for an item.
Output number key	• To assign an output number to a detection zone.
Operate key	• To put the board in operation mode.
Modify key	• To change settings while starting from the last saved settings for all parameters.
Edit key	• To change settings while starting from default values for all parameters.

Data subject to alteration without notice or obligation

Moerseestzenweg 440/2, B-9991 Maldegem, Belgium – tel +32 (0)50 37 22 60 – fax +32 (0)56 37 21 58 – traficon@traficon.com – www.traficon.com

Naztec, Inc.
ATMS Solutions

Dimensions
- TS-2 compatible card rack units

Communication
- Ethernet communication for image and data transfer (10Mb/sec) via RJ-45 connector
- RS232-C communication for image and data transfer via DB9 connector. Also used as service port for set-up
- RS-485 communication within a rack for data acquisition via EDGE connector

Inputs
- Composite video 75 V 1Vcc CCIR/EIA
- Power Supply
- Reset switch on front panel

Outputs
- Analog video output with overlay of system information
- Auto diagnostic LED indicators

Connector
- Double row 22 pins EDGE (NEMA TS-2-1992)

Power Supply & Consumption
- 10.8 to 26.5 VDC
- 250mA at 24 VDC

Environmental
- -29°F to +185°F (-34°C to +74°C)
- 0 to 96% relative humidity – non-condensing

Remote Monitoring and Transmission of Data, Alarms & Images over ETHERNET and RS232

- Handles transmission of Traffic Data & Alarm Events
- Performs digitization & hardware based JPEG compression of images
- Handles transmission of images

HARDWARE

- Hardware Compression Chip Color JPEG
- 6 video inputs (all switchable)
- Connections: 1 Ethernet 10Mb/s, 1 x RS232, 1 x RS485 (internal)

BOARD SOFTWARE

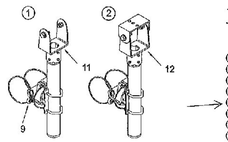
- Operating system is embedded LINUX
- Java Applets for set-up
- Video Server for live streaming images

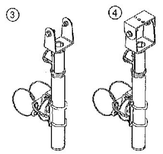
PC SOFTWARE

- TMS software interacting with the VU COM is available.

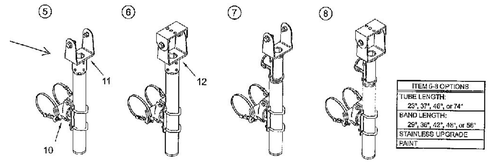
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www.naztec.com naztec@naztec.com
Additional offices in Florida, New York and Virginia

CAMERA MOUNTINGS
Astro-Brac





ITEM 1-4 OPTIONS
TUBE LENGTH:
23", 37", 46", or 74"
CABLE LENGTH:
60", 84", or 96"
PAINT



ITEM 5-8 OPTIONS
TUBE LENGTH:
23", 37", 46", or 74"
BAND LENGTH:
29", 36", 43", 46", or 56"
STAINLESS UPGRADE
PAINT

ITEM	DESCRIPTION	PART NO.
	VIDEO DETECTION CAMERA BRACKET	
	Extended Tilt & Pan, Stellar Series:	
1	Cable Mount, 1-Piece	AS-0175
2	Cable Mount, 2-Piece	AS-0169
3	Cable Mount w/ Service Wire Outlet, 1-Piece	AS-0166
4	Cable Mount w/ Service Wire Outlet, 2-Piece	AS-0164
5	Band Mount, 1-Piece	AS-0170
6	Band Mount, 2-Piece	AS-0172
7	Band Mount w/ Service Wire Outlet, 1-Piece	AS-0177
8	Band Mount w/ Service Wire Outlet, 2-Piece	AS-0173
	ASTRO-BRAC CLAMP KIT, Stellar Series:	
9	Cable Mount	AS-3009
10	Band Mount	AS-3004
	CAMERA MOUNTING BRACKET:	
11	1-Piece, Alum.	SH-0514
12	2-Piece, Alum.	SH-0515
13	1-Piece, Ilaria Versicam, Alum.	SH-0537
14	Adjustable, 2.56" to 4.36", Alum.	SH-0538

Notes:

1. All assemblies are supplied standard with stainless steel fasteners. Stainless steel upgrade shall include stainless clamp screw kit where applicable.
2. 1-piece bracket for mounting Ilaria, Odetics, or Econolite Solo Pro type cameras. 2-piece bracket for mounting Burle type cameras.
3. Please specify options when ordering.



ITEM 13-14 OPTIONS
PAINT

P.O. Box 3200 3500 Pelco Way Clovis, CA 93612-5699 USA Phone: 559.292.1981 Fax: 559.348.1120 www.pelco.com

Campbell Company

APS

Advisor Guide Accessible Pedestrian Station (AGPS)



FEATURES

- Data Collection
- Night Mode Volume
- Forward Facing Speaker
- Simple Installation

KEY BENEFITS

- Independent Locations
- 4-wire Interface
- Event Tracking Log
- Ped Count/Call Data
- Laptop Interface
- Simple Menu Utility
- NEMA TS 2 Certified
- Meets MUTCD Guidelines

Overview

Regardless of physical capability, pedestrians are finding it more challenging to cross safely at signalized intersections. The Advisor APS provides important cues to assist all pedestrians to cross the intersection safely by providing audible, tactile, and visual indications at the crosswalk.

Independent Station

A locator tone, controlled with ambient gain compensation, tells a pedestrian that the crossing is equipped with APS and where it can be found. An extended press provides specific intersection information and access to additional functions. The audible walk tone or message is accompanied by a vibro-tactile indication during the visual walk display. Optional clearance phase indications may provide additional information to the pedestrian where appropriate.

Agency Benefits

The Advisor (AGPS) is designed around flexibility and ease of use. Each Advisor is configured at the factory, but customization and data extraction are simply obtained by utilizing any laptop with a USB connection. A menu driven utility guides the user through set up and downloads effortlessly. Night mode volume controls along with forward facing speakers incorporate Quiet Signals Technology to accommodate residential and evening business considerations.

Installation

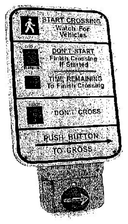
Ready to mount, out of the box, a four conductor cable interfaces to the Signal Power Interface (SPI) in the pedestrian signal head. All adjustments and settings are made at the pedestrian station. Aesthetically pleasing extension brackets are available allowing stations to be mounted within accessibility guidelines.

Campbell Company • 450 W. McGregor Boise, ID 83705 • 208-345-7459 • www.pedsafety.com

Campbell Company

APS

Black Finish with 9" x 15" Sign

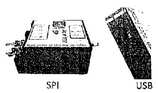


Technical Specification

Interface	Windows Utility
Audio File update	USB
Data Format	CSV
Firmware Upgrade	USB

Input voltage	85 - 135 VAC
Output voltage	12V DC
Connection	4 wire
Dimension	2 ¾ x 3 ½ x 1 7/8"

BS Size	5 x 12 x 1 ¾ "
BS Weight	7.0 lbs
Power (rest)	0.48W @ 120 VAC
Current (rest)	4 mA @ 120 VAC
Max Power	1.68 W
Switch life	100×10^6
Operational force	< 3lbf
Operating Temp Range	-40C to +85C
Max Volume	100dB @ 1m
AGC Range	Adjustable 0 - 5dB over ambient
Audio Output Options	Default plus 4 options
LED	3000 mcd , 160 degree viewing angle
Volume control	Fully adjustable, independent channels
Reporting	Pedestrian Usage, Event Logging, System Evaluation
Synchronicity	Beaconing, Group Walk
Night Mode	Volume, Recall
Selectable Options (options selected via lap top USB connection via a menu drive utility)	EP APS, Vib Pulse Call, Recall, Beaconing, Group Walk, Walk time out, Locator Tempo, EP Time, Vib Intensity
Sizes	5 X 7 ¾ , 5 X 9", 9 X 12 ", 9 X 15"
Warranty	3 year
Functionality	MUTCD 2009 4E, TAC
Transient Voltage Protection	NEMA TS2
Mechanical Shock and Vibration	NEMA TS2

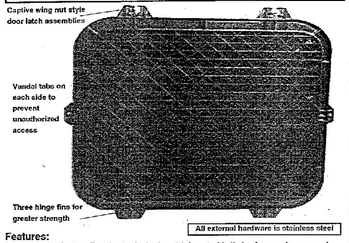


Additional information can be found at: www.pedsafety.com

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Pedestrian Signals (16")



Features:

- **Invertable design:** Door is attached using stainless steel bull pins for easy door removal and may swing from either end of the body (for left or right of door mounting).
- **One style universal maintenance housing** will fit any mounting application!
- Lens and Gasket mounted to door with four stainless steel tabs and screws using threaded brass inserts in door -- NOT glued to the door!
- **Rotatable sockets** (for proper lamp orientation) are standard
- **Multiple Body options:** Die cast aluminum, Polycarbonate
- **Multiple Door options:**
  - Black Polycarbonate w/integral "Z" style protectors
  - Black Polycarbonate, open style
  - Black Die cast aluminum, open style



 © Traffic Parts, Inc.

Options: Traffic Parts, Inc.

1. Body Configuration
N=Body not drilled
C=Drilled for clamdoor mounting
P=Drilled for top/bottom pipe mount
B=Drilled for both with plugs
(Universal maintenance housing)

2. Message Configuration
N=Body + Door only
(No lens,gasket,reflector,sockets)

Conf	Hand	Man
1	Incand*	Incand*
2	LED**	Incand*
3	LED**	LED**
A	LED Side by Side (Hand/Man)	
B	LED Overlay H/M Cantdown	
F	LED Overlay H/M Cntdown, I-Lock	

*Lamps not Included (use 69,67,68w.)
**LED=Socket mount LED module

3. Lens Type
N=None (LED ready) G=Glass

4. Body/Hardware Color/Matl
Aluminum Body Options:
Y=Yellow B=Gloss Blk F=Flat Blk
G=Dk Grn L=Light Grn Z=Bronze
A=Aluminum X=Special
Polycarbonate Body Options:
P=Yellow Q=Black R=Dk Green

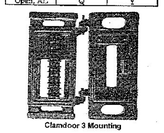
5. Terminal Block Type
2=5 position, 20a
3=6 position, 30a
N=None

6. Mounting Hardware
N=None
2=Clamdoor 2 Mount (8 pos block)
3=Clamdoor 3 Mount (10 pos block)

7. Visor/Door (All Black)
All visors are 6" Al. tunnel, black

Door	w/o Visor	w/ Visor
Z=cast, PC	N	T
Open, PC	P	X
Open, Al.	Q	Y


Clamdoor 2 Mounting


Clamdoor 3 Mounting

SSPED	PINNACLE																		
Option Category →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

 © Traffic Parts, Inc.

ESSEX-WESTBURY STD 1918(.)

DURALIGHT ®

TECHNICAL DATA

Certified by ISO9001 International Quality Control System

JXM-400VIE Series Countdown Pedestrian Lamps

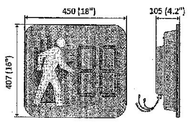




Fig. A



Fig. B

Model Number		JXM-400VIE	JXM-400VIEI
Size	Inches	16" X 18"	16" X 18"
	mm	407 X 460	407 X 460
Configuration		Fig. B *Pixilated*	Fig. C *Incandescent Look*
Symbol	Hand	Full	Full
	Man	Full	Full
	Countdown	2 Digit	2 Digit
Voltage (Typical)		120V – 60Hz	120V – 60Hz
Voltage (Range)		80V – 135V	80V - 135V
Power (W) Typical	Hand	8	8
	Man	8	8
	Countdown	4	4

**Optional Operations Dipswitch*

All characteristics, including visual characters, chromaticity, moisture and vibration resistance, electronic noise, transient protection, etc., are conformed to standards specified in ITE LED Vehicle Signal Modules.

TRASTAR, INC.