

HIGHWAY 427 EXPANSION

DCR # 3

E.2 Removals & Preloading

GENERAL

1. SEE NSSP FOR FURTHER DIRECTIONS DURING CONSTRUCTION.

GRUBBING

1. ENVIRONMENTAL PROTECTION MEASURES WILL BE SUPERVISED AND INSPECTED AS REQUIRED DURING CONSTRUCTION.
2. IN THE EVENT THAT ADJACENT VEGETATION COMMUNITIES OR PLANTED TREES ARE ACCIDENTALLY DAMAGED DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL ENSURE THAT APPROPRIATE CONTINGENCY MEASURES ARE IMPLEMENTED SUCH AS PRUNING TREE LIMBS OR ROOTS THAT ARE ACCIDENTALLY DAMAGED USING PROPER ARBORICULTURAL TECHNIQUES.

CONTROLLED CONSTRUCTION VEHICLE ACCESS

1. CONSTRUCTION VEHICLE ACCESS WILL BE LIMITED TO EXISTING ROADWAYS AND CONSTRUCTION PATHS, AWAY FROM THE IDENTIFIED NATURAL AREAS AND THEIR RECOMMENDED BUFFERS.
2. RESTRICT EARTH MOVEMENT IMMEDIATELY ADJACENT TO WOODLANDS DURING PERIODS OF HIGH DUST GENERATION. DUST SUPPRESSANTS WILL BE APPLIED DURING DRY PERIODS TO THOSE AREAS WHICH GENERATE EXCESSIVE DUST.

INVASIVE SPECIES MANAGEMENT

1. A NUMBER OF INVASIVE SPECIES ARE PRESENT WITHIN THE ALIGNMENT FOOTPRINT. THE CONTRACTOR RESPONSIBLE FOR IMPLEMENTING INVASIVE SPECIES MANAGEMENT AS PER THE INVASIVE SPECIES MANAGEMENT PROGRAM.
2. EQUIPMENT WORKING IN THE IDENTIFIED INVASIVE SPECIES LOCATIONS WILL BE THOROUGHLY CLEANED PRIOR TO MOVING FROM THE SITE. SOIL REMOVED FROM SITES WITH A HIGH INCIDENCE OF INVASIVE SPECIES WILL BE BURIED BELOW IMPERVIOUS SURFACES (E.G. ROAD) AND WILL NOT BE RE-USED FOR ANY VEGETATION RESTORATION SITES UNLESS IT IS PLACED IN AN AREA THAT WILL BE ACTIVELY AND REGULARLY MANAGED.
3. ALL EQUIPMENT AND MACHINERY REQUIRE INSPECTION AND CLEANING INCLUDING, BUT NOT LIMITED TO: CARS, TRUCKS, ATV'S, TRACTORS, MOWERS, SLASHERS, TRAILERS, BACKHOES, GRADERS, DOZERS, EXCAVATORS, SKIDDERS, LOADERS, AND WATER TANKERS.
4. EQUIPMENT IS TO BE CLEANED IN AN AREA WHERE CONTAMINATION AND SEED SPREAD IS NOT POSSIBLE (OR IS LIMITED). THE SITE SHOULD BE: A) A HARD SURFACE, GRAVEL SURFACE, OR MOWN GRASSY AREA, B) GENTLY SLOPING TO ASSIST DRAINING WATER AND MATERIAL IN MOVING AWAY FROM THE EQUIPMENT (WATER SHOULD RUN BACK INTO THE AREA WHERE CONTAMINATION OCCURRED), C) AT LEAST 30M AWAY FROM ANY WATERCOURSE, WATER BODY, AND NATURAL VEGETATION, AND D) LARGE ENOUGH TO ALLOW FOR ADEQUATE MOVEMENT OF LARGE EQUIPMENT.

TIMING RESTRICTIONS

1. ANY INSTREAM WORKS AND WORK ON WATERCOURSE BANKS SHALL BE CONDUCTED DURING THE APPROPRIATE IN-WARMWATER CONSTRUCTION TIMING (JULY 1 TO MARCH 31) TO PROTECT THE RESIDENT WARMWATER FISH COMMUNITIES PRESENT AT WATERCOURSE CROSSINGS BOTH DIRECT AND INDIRECT.

EROSION AND SEDIMENT CONTROL (ESC)

1. EROSION AND SEDIMENT CONTROL (ESC) INSPECTION WILL BE UNDERTAKEN DURING CONSTRUCTION ACTIVITIES BY AN ENVIRONMENTAL INSPECTOR UNTIL THE WORK IS COMPLETED AND THE SITE IS STABILIZED.
2. ESC MEASURES WILL BE IMPLEMENTED PRIOR TO GRUBBING AND GRADING OPERATIONS, AND MAINTAINED IN EFFECTIVE WORKING ORDER UNTIL THE SITE IS STABLE, TO PREVENT ENTRY OF SEDIMENT INTO ANY WATERCOURSE, WETLAND OR RETAINED NATURAL AREA.
3. ESC INSPECTIONS WILL OCCUR WEEKLY AS WELL AS PRIOR TO AND FOLLOWING RAIN/SNOWMELT EVENTS. ESC MEASURES WILL BE CLEANED OUT, REPAIRED AND/OR REPLACED.
4. ALL EXPOSED SOILS AND NEWLY CONSTRUCTED SURFACES WILL BE STABILIZED WITHIN 45 DAYS OF COMPLETING THE WORK USING THE APPROPRIATE MEANS IN ACCORDANCE WITH THE CHARACTERISTICS OF THE SOIL MATERIAL AND SLOPE CONDITIONS BY METHODS SUCH AS HYDRO-SEEDING, SODDING, POLYMER SOIL STABILIZERS/TACIFIERS, RIP RAP, MULCH, GEOTEXTILES, EROSION CONTROL BLANKETS, ETC.
5. EROSION AND SEDIMENT CONTROL FOR DIFFERENT PHASES OF CONSTRUCTION FOR IDENTIFIED WATERCROSSINGS SHALL BE AS SHOWN IN THE CONSTRUCTION PERIOD DRAINAGE AND SEDIMENT MANAGEMENT PLANS (DSMPs).
6. DITCHES AND CULVERTS WILL BE INSTALLED PRIOR TO OTHER CONSTRUCTION TO ENSURE STORMWATER IS DIRECTED TO TEMPORARY SEDIMENT TRAPS OR PONDS.
7. DITCHES WILL BE SEEDED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
8. ALL ESC MEASURES WILL BE FIELD FIT.

MATERIAL / DEBRIS STORAGE









1. TREE/SHRUB DEBRIS WILL BE STORED IN SPECIALLY IDENTIFIED TREE STORAGE AREAS OUTSIDE OF THE IDENTIFIED VEGETATION COMMUNITIES, NATURAL HERITAGE FEATURES (I.E., VALLEY SLOPES, WETLANDS, WATERCOURSES, ETC.) AND VEGETATION AND WILDLIFE RESTORATION SITES.
2. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN ADJACENT NATURAL AREAS.

WATERCOURSE

1. ALL CONSTRUCTION ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE WATER. VEHICULAR REFUELING AND MAINTENANCE WILL BE CONDUCTED A MINIMUM OF 30 METRES FROM THE WATERCOURSES.
2. DEWATERING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CONTROL PROCEDURES AS SPECIFIED IN OPSS 517 (DEWATERING). APPROPRIATE DEWATERING MEASURES SHALL BE IMPLEMENTED TO MANAGE ANY GROUNDWATER ENCOUNTERED DURING GRADING ACTIVITIES, AND DEWATERING DISCHARGE WATER WILL BE FILTERED AS NECESSARY TO PREVENT TRANSPORT OF SEDIMENT TO NATURAL SURFACE WATER RECEPTORS.
3. NO EQUIPMENT OR VEHICLES ARE PERMITTED TO CROSS THROUGH THE WATERCOURSES AT ANY TIME.

WILDLIFE

1. ANY WILDLIFE INCIDENTALLY ENCOUNTERED DURING CONSTRUCTION WILL NOT BE KNOWINGLY HARMED.
2. SIGHTINGS OF UNKNOWN OR UNCOMMON SPECIES, DENS, OR NESTS MUST BE REPORTED TO THE ENVIRONMENTAL INSPECTOR IMMEDIATELY.
3. DO NOT HARASS, INJURE, OR KILL ANY FORM OF WILDLIFE.
4. WILDLIFE MUST BE ALLOWED TO DISPERSE FROM ROADS OR RIGHT-OF-WAY.
5. REPORT ANY DEAD OR INJURED WILDLIFE TO THE ENVIRONMENTAL INSPECTOR.
6. DURING CONSTRUCTION OF WILDLIFE ENHANCEMENT AND COMPENSATION MEASURES, NO HEAVY EQUIPMENT SHALL BE USED IN EXISTING FOREST COMMUNITIES AND RIPARIAN AREAS THAT HAVE BEEN IDENTIFIED FOR PROTECTION.

					SCALE :								HWY 427 EXPANSION								
													ENVIRONMENTAL PROTECTION NOTES								
													PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER	
													H427-D	N	4A	HWY	000	DWG	0003	B	
B	18/05/25	90% SUBMISSION TO CA																			
A	18/04/27	90% SUBMISSION TO CA																			
NO.	DATE	REVISIONS			BY	CHK	LEAD. DESG.	PROJ. MAN.													
									DESIGNED	MICHAEL ETINGEN											
									DRAWN	MICHAEL ETINGEN											
									CHECKED	DUNCAN CAMPBELL											
									APPROVED LEAD ENGINEER	JONATHAN MOHACSI											
									APPROVED PROJ. MANAGER	PETER BAMFORTH											
											NAME (PRINT)	INIT.	DATE								

SUPPLEMENTAL LEGEND

RIGHT OF WAY, FENCES, ETC.

	RIGHT OF WAY (ROW)
	ROW - TEMPORARY LIMITED INTEREST (TLI)
	FUTURE TRANSITWAY ROW
	CHAIN LINK FENCE (TOP WIRE) ON RIGHT OF WAY (OPSD 972.130)
	HEAVY DUTY SILT FENCE BARRIER (OPSD 219.130)
	TURBIDITY CURTAIN (OPSD 219.260)
	TREE PROTECTION
	ACCESS GATE

DRAINAGE

	STORM SEWER
	150mmØ PERFORATED PIPE SUB-DRAIN
	CATCH BASIN / DITCH INLET, MANHOLE
	TRANSVERSE CATCH BASIN / MANHOLE
	CATCH BASIN, MANHOLE TO BE ADJUSTED
	CULVERT
	CULVERT WITH HEADWALL
	FLOW CHECK DAM OPSD 219.211 - TEMPORARY ROCK (DURING CONSTRUCTION) OPSD 219.180 - PERMANENT STRAW BALE
	FLOW CHECKS & RIP RAP AT DITCH INLETS OPSD 219.180 - STRAW BALE FLOW CHECK OPSD 810.020 - RIP RAP TREATMENT
	FLOW ARROW
	V-TYPE DITCH
	FLAT BOTTOM DITCH

NEW CONSTRUCTION

	CONCRETE SIDEWALK / MULTI-USE PATH
	RETAINING WALL
	STEEL BEAM GUIDERAIL
	CONCRETE BARRIER
	CONCRETE CURB AND GUTTER
	GUTTER OUTLET 45° WITH ASPHALT SPILLWAY
	STEEL BEAM ENERGY ATTENUATING TERMINAL (SBEAT) / ENERGY ATTENUATOR PERMANENT (EAP)
	EARTH FILLS RAISED BENCH
	EARTH CUTS RAISED BENCH
	CUTS AND FILLS (EARTH)
	RIP-RAP
	SEED & EROSION CONTROL BLANKET (USED ON SLOPES STEEPER THAN 3:1)
	MISCELLANEOUS ASPHALT PAVING
	HIGH MAST LIGHT POLE APRON

MISCELLANEOUS

	ENVIRONMENTAL PROTECTION ZONE 1
	ENVIRONMENTAL PROTECTION ZONE 2

REMOVALS

	TREE TO BE GRUBBED
	TREE/VEGETATION GRUBBING
	CONCRETE CURB & GUTTER OR CONCRETE BARRIER TO BE REMOVED
	GUIDE RAIL TO BE REMOVED
	FENCE TO BE REMOVED
	CULVERT TO BE REMOVED
	GATE TO BE REMOVED
	CB, DI, MH TO BE REMOVED
	REMOVAL OF ASPHALT PAVEMENT, FULL DEPTH
	REMOVAL OF ASPHALT PAVEMENT, PARTIAL DEPTH
	CONCRETE REMOVAL
	REMOVAL OF ASPHALT PAVEMENT ON STRUCTURE

STAGING

	TC-51
	TC-54
	TEMPORARY CONCRETE BARRIER (TCB) w/REFLECTORS @ 10m SPACING
	ENERGY ATTENUATOR
	WORK ZONE / UNDER CONSTRUCTION
	UNDER CONSTRUCTION TEMPORARY
	NIGHT CLOSURE CONSTRUCTION
	COMPLETED CONSTRUCTION
	COMPLETED CONSTRUCTION TEMPORARY
	CONSTRUCTION INGRESS / EGRESS
	NO. OF LANES / TRAFFIC FLOW

PAVEMENT MARKING

1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	363 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	333 BROKEN WHITE,10cm
7	363 BROKEN WHITE,10cm
8	393 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	111 BROKEN WHITE,20cm
11	333 BROKEN WHITE,20cm
12	333 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
20	SYMBOLS
] [LIMITS OF MARKINGS	

PAVEMENT MARKING (DETOUR ORANGE)

21	SOLID ORANGE,10cm
22	SOLID DOUBLE ORANGE,10cm
23	363 BROKEN ORANGE,10cm
24	SOLID ORANGE,20cm
25	SOLID ORANGE,10cm
26	333 BROKEN ORANGE,10cm
27	363 BROKEN ORANGE,10cm
28	393 BROKEN ORANGE,10cm
29	SOLID ORANGE,20cm
30	111 BROKEN ORANGE,20cm
31	333 BROKEN ORANGE,20cm
32	333 BROKEN ORANGE,30cm
33	SOLID ORANGE,30cm
34	SOLID ORANGE,45cm
40	SYMBOLS
] [LIMITS OF MARKINGS	

*NOTE: ORANGE PMK FOR FREEWAY ONLY.

NOTES:

- 333, 363, 393, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
- Use ① to Denote PAVEMENT MARKING
- Use ① to Denote PAVEMENT MARKING, TEMPORARY
- Use △ to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
- Use ① to Denote PAVEMENT MARKING, DURABLE

TRAFFIC SIGN

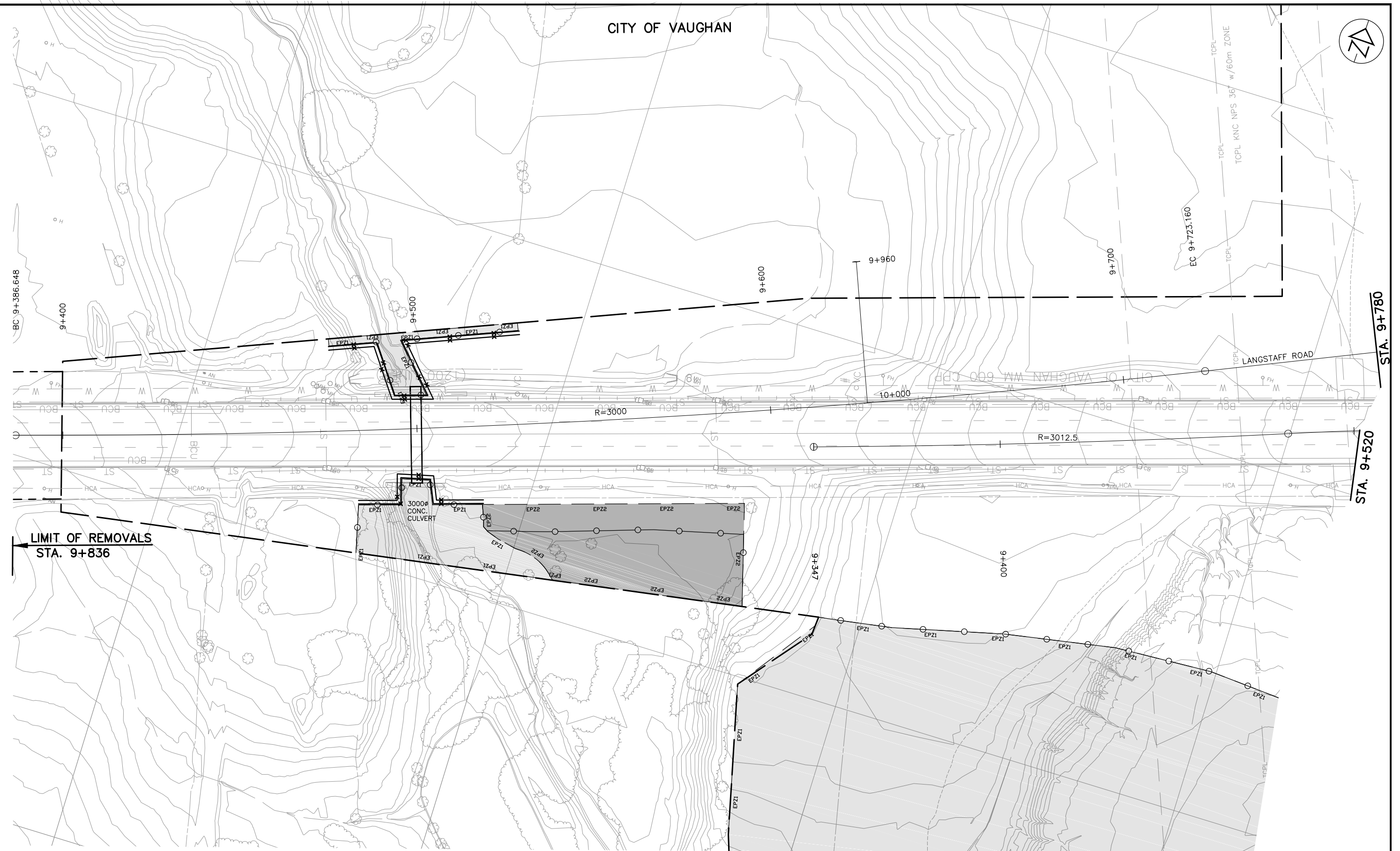
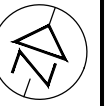
	EXISTING GROUND MOUNTED SIGN
	SINGLE POST GROUND MOUNTED SIGN
	DOUBLE POSTS GROUND MOUNTED SIGN

PRELOADING

	TOP OF TEMPORARY BERM BARRIER (OPSD 219.231)
	SETTLEMENT ROD (SR)

SCALE : N.T.S				<table border="1" style="font-size: 8px;"> <tr><td>DESIGNED</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>DRAWN</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>CHECKED</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>APPROVED LEAD ENGINEER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>APPROVED PROJ. MANAGER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>CONSULTANT</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>NAME (PRINT)</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>INT.</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>DATE</td><td></td><td></td><td></td><td></td><td></td></tr> </table>				DESIGNED						DRAWN						CHECKED						APPROVED LEAD ENGINEER						APPROVED PROJ. MANAGER						CONSULTANT						NAME (PRINT)						INT.						DATE										HWY 427 EXPANSION SUPPLEMENTAL LEGEND HIGHWAY 427 MAINLINE					
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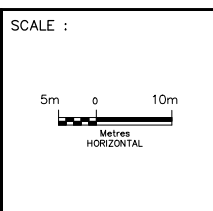
CITY OF VAUGHAN



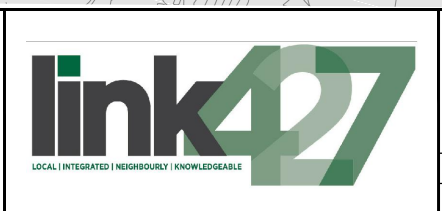
LIMIT OF REMOVALS
STA. 9+836

STA. 9+780
STA. 9+520

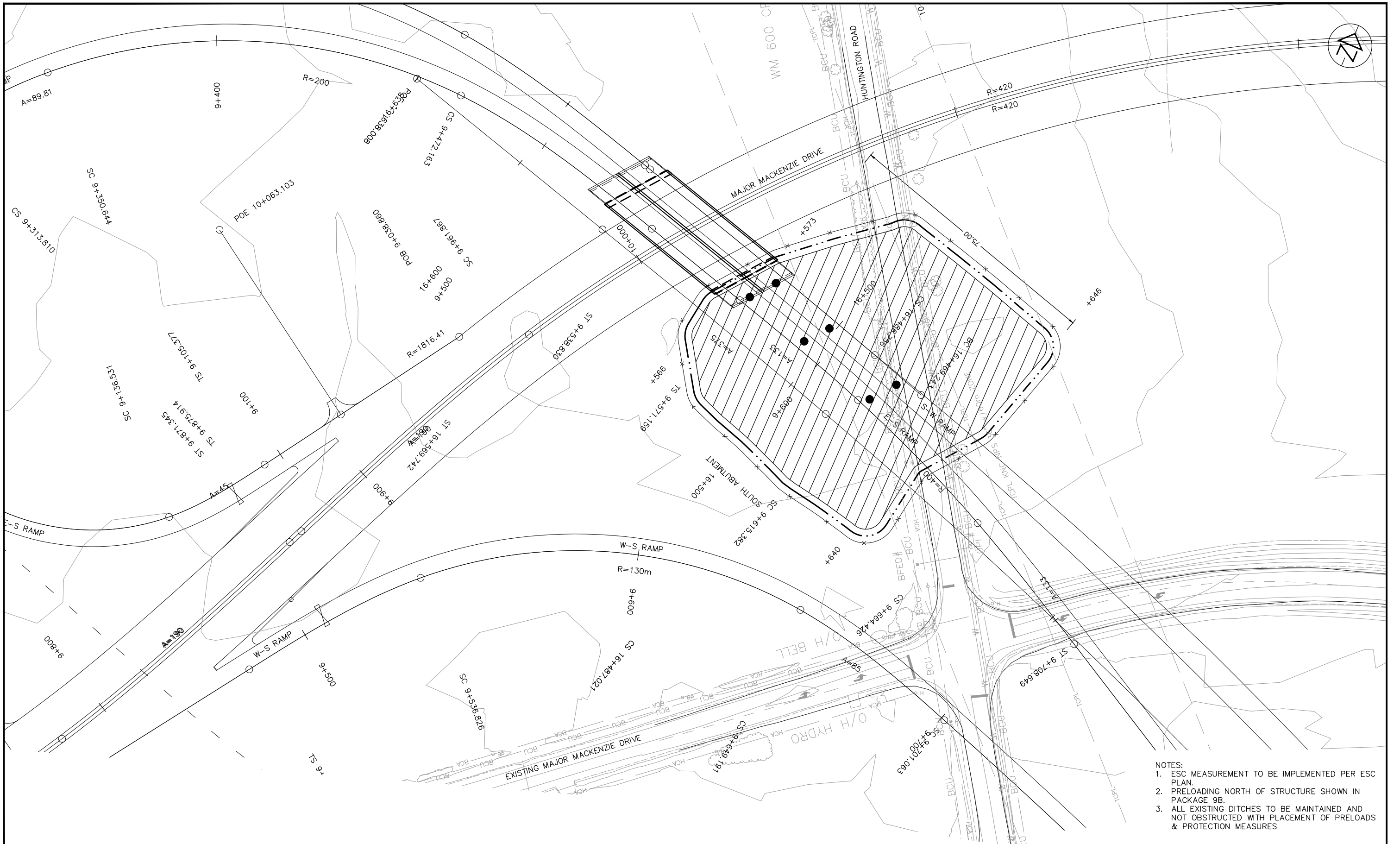
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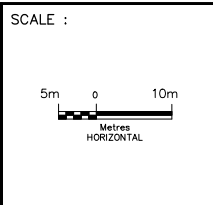


HWY 427 EXPANSION							
REMOVALS LANGSTAFF ROAD STA. 9+836 TO 9+780							
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H427-D	N	4A	HWY	000	DWG	0010	B



- NOTES:
1. ESC MEASUREMENT TO BE IMPLEMENTED PER ESC PLAN.
 2. PRELOADING NORTH OF STRUCTURE SHOWN IN PACKAGE 9B.
 3. ALL EXISTING DITCHES TO BE MAINTAINED AND NOT OBSTRUCTED WITH PLACEMENT OF PRELOADS & PROTECTION MEASURES

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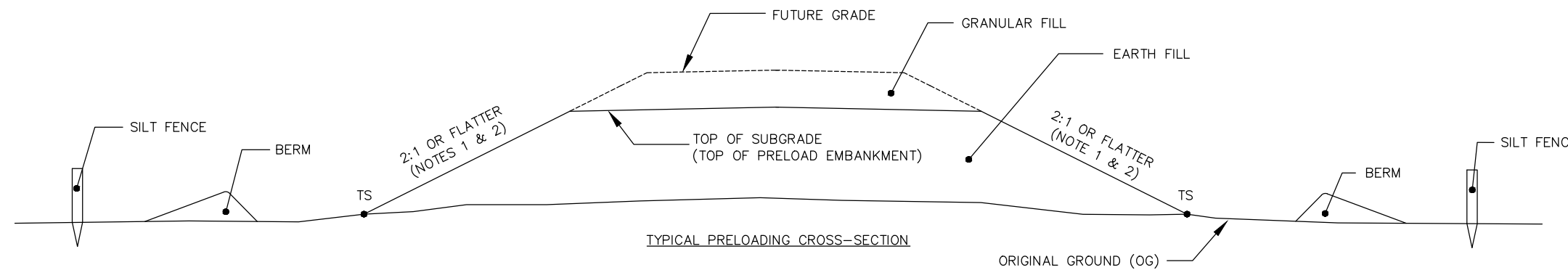
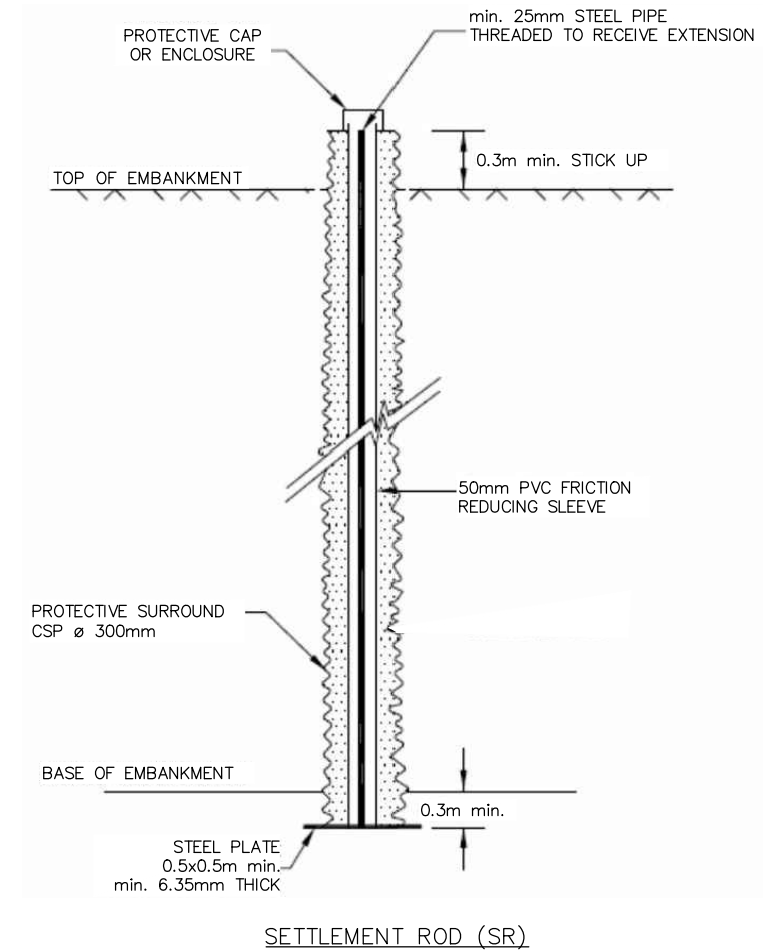
HWY 427 EXPANSION PRELOADING DETAILS							
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H427-D	N	5	HWY	000	DWG	0039	B

TABLE 1 – PRELOADING LOCATIONS

LOCATION	NO. OF SETTLEMENT RODS	APPROXIMATE ROD LENGTH (m)	ANTICIPATED PRELOAD DURATION (MONTH)
MMD OVERPASS (SOUTH APPROACH)	6	11	4

PRELOAD NOTES:

1. AT THE EMBANKMENT BASE LEVEL, THE LATERAL EXTENT OF THE PRELOAD EMBANKMENT SHALL COVER FINAL EMBANKMENT FOOTPRINT. AT THE LEVEL OF FINISHED ROAD GRADE, THE LATERAL EXTENT SHALL COVER THE DESIGN EMBANKMENT WIDTH. THE DESIGN EMBANKMENT WIDTH SHALL INCLUDE AN OVERBUILD (I.E PLATFORM WIDENING) OF 100–200mm AT EACH SIDE OF THE EMBANKMENT TO ACCOMMODATE FUTURE SETTLEMENT.
2. SLOPES TO BE SPRAYED WITH HYDROSEED, PER OPSS 804 AND THE ESC PLAN.
3. INSTALLATION OF EMBANKMENT MONITORING INSTRUMENTS SHALL BE COMPLETED PRIOR TO CONSTRUCTING THE PRELOAD EMBANKMENT.
4. THE ANTICIPATED WAITING PERIOD UNDER PRELOAD EMBANKMENT IS PROVIDED IN TABLE 1. THE ACTUAL DURATION OF THE PRELOADING PERIOD SHALL BE GOVERNED BY THE FOUNDATION BEHAVIOR ASSESSED FROM THE MONITORING DATA.
5. CONSTRUCTION ACCESS AND WORK IN EXPANSION AREAS TO COMPLY WITH APPLICABLE CLOSURE TIMES AND OHSA.
6. BERM BARRIER (OPSD 219.231) AND HEAVY DUTY SILT FENCE PROTECTION TO BE PLACED DOWN THE SLOPE FROM PRELOAD EMBANKMENT, RESPECTIVELY. BERM TO HAVE 0.5m MIN HEIGHT, AND SILT FENCE TO BE PLACED IMMEDIATELY AT THE END OF THE BERM. MINIMUM OF 1.2m TO BE KEPT BETWEEN ABUTMENT TOE OF SLOPE AND AND BERM.



B 18/05/25		90% SUBMISSION TO CA				SCALE : 	DESIGNED MICHAEL ETINGEN DRAWN MICHAEL ETINGEN CHECKED DUNCAN CAMPBELL APPROVED LEAD ENGINEER JONATHAN MOHACSI APPROVED PROJ. MANAGER PETER BAMFORTH				HWY 427 EXPANSION PRELOADING DETAILS					
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