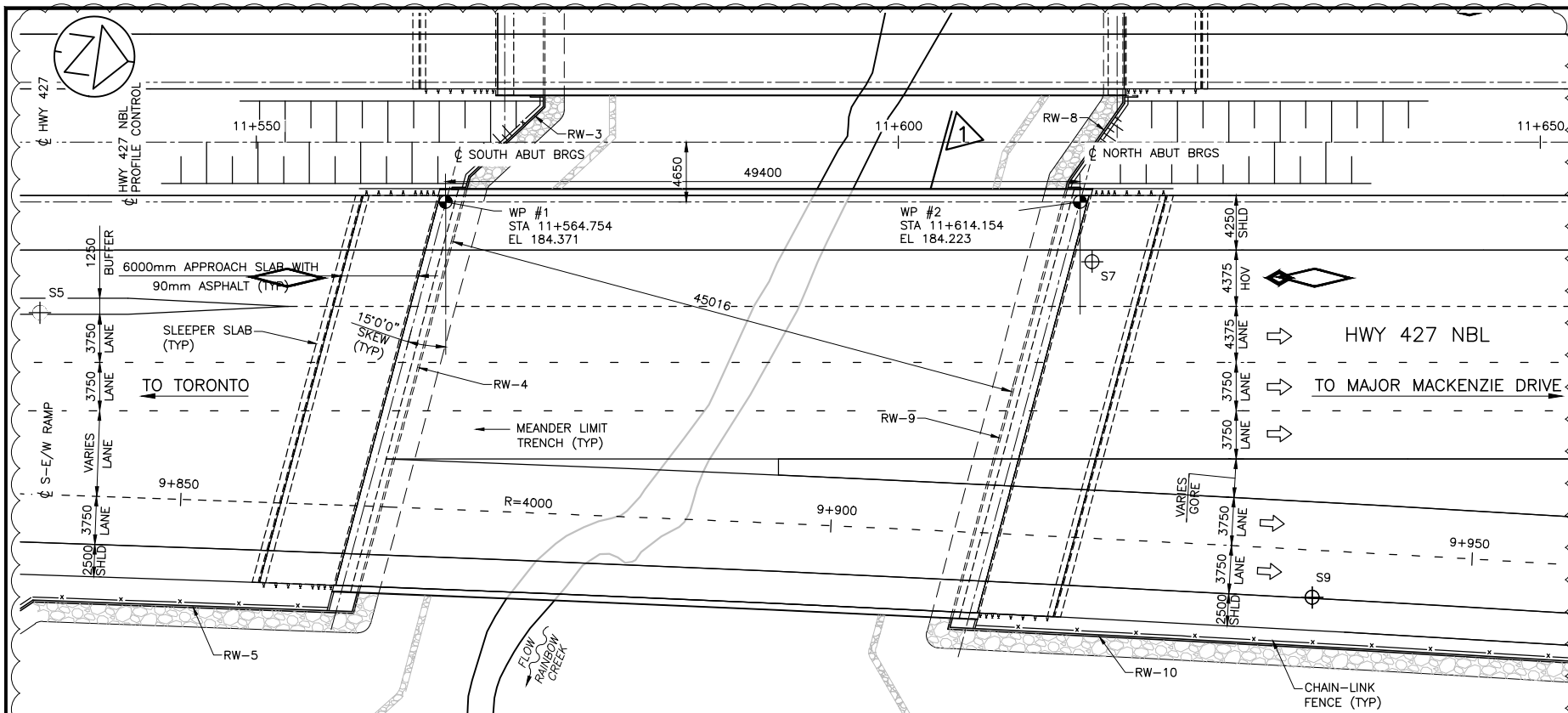


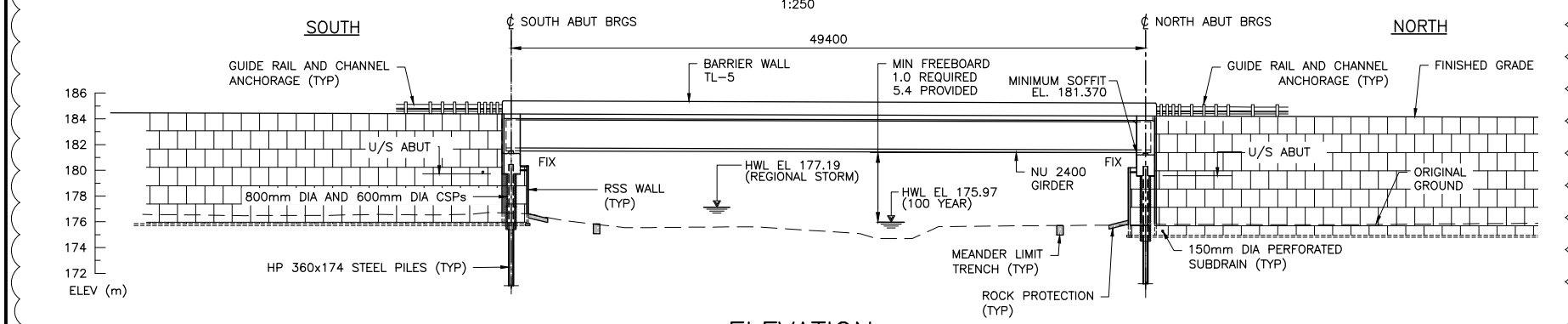
HIGHWAY 427 EXPANSION

DCR # 3

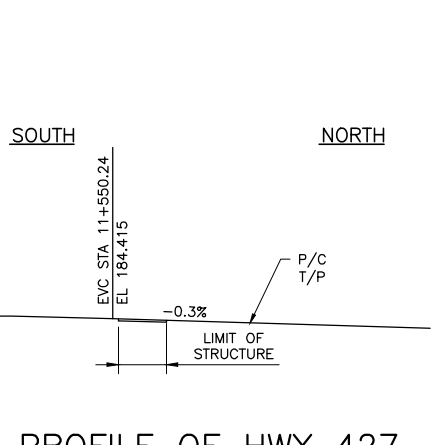
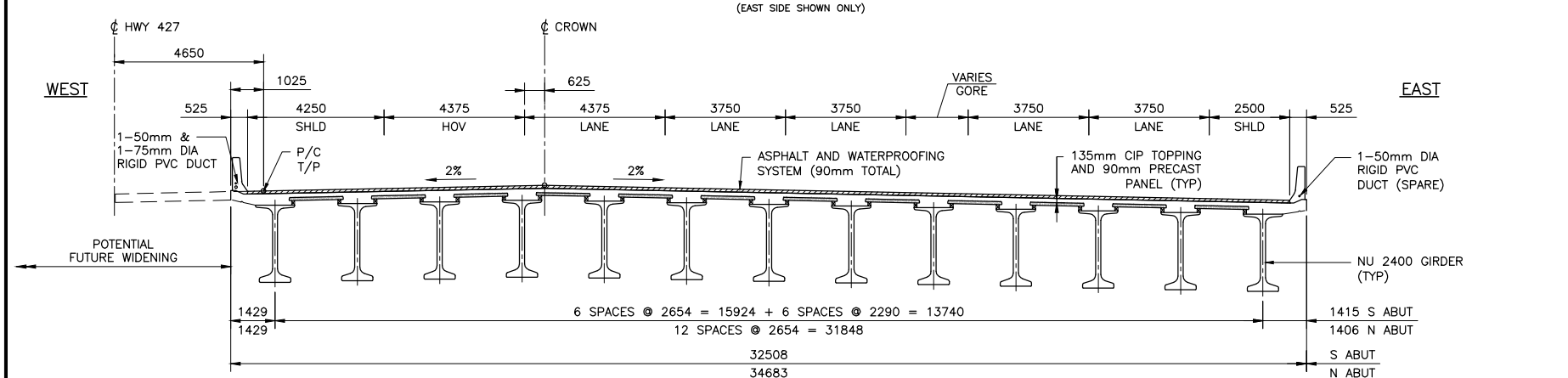
E.1 Structures



PLAN
1:250



ELEVATION
1:250
(EAST SIDE SHOWN ONLY)



PROFILE OF HWY 427
NTS

APPLICABLE STANDARD DRAWINGS:

- OPSD 3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
- OPSD 3101.150 WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENTS
- OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
- OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT

LIST OF DRAWINGS:

- 600 GENERAL ARRANGEMENT
- 601 BOREHOLE LOCATIONS AND SOIL STRATA
- 602 FOUNDATION LAYOUT
- 603 NORTH ABUTMENT DETAILS AND REINFORCEMENT
- 604 SOUTH ABUTMENT DETAILS AND REINFORCEMENT
- 605 RETAINED SOIL SYSTEMS WALL LAYOUT-1
- 606 RETAINED SOIL SYSTEMS WALL LAYOUT-2
- 607 PRESTRESSED NU GIRDERS AND BEARINGS (NU 2400)
- 608 PRESTRESSED NU GIRDER - DETAILS
- 609 DECK LAYOUT & SCREED ELEVATIONS
- 610 PRECAST DECK PANEL LAYOUT
- 611 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAIL I
- 612 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAIL II
- 613 DECK REINFORCEMENT
- 614 BARRIER WALL W/O RAILING, TL-5 (GFRP REBAR WITH ANCHOR HEAD)
- 615 6000 mm APPROACH SLABS
- 616 EXPANSION JOINT AND SLEEPER SLAB (10mm < MOVEMENT <= 40mm)
- 617 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB (10mm < MOVEMENT <= 40mm)
- 618 STANDARD AND MISCELLANEOUS DETAILS
- 619 PILE DRIVING CONTROL
- 620 ELECTRICAL EMBEDDED WORK

LIST OF ABBREVIATIONS:

- WP WORKING POINT
- CIP CAST IN PLACE
- P/C PROFILE CONTROL
- T/P TOP OF PAVEMENT

LEGEND:

- ⊕ BOREHOLE
- ROCK PROTECTION AND MEANDER LIMIT HATCH
- PRECAST CONCRETE PANEL
- NEW ASPHALT AND WATERPROOFING

GENERAL NOTES:

1. DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
2. LIVE LOAD: CL-625-ONT.
3. CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
4. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100±25
DECK	
TOP	70±20
BOTTOM	40±10
REMAINDER UNLESS OTHERWISE NOTED	70±20
5. RETAINED SOIL SYSTEM (RSS) SHALL HAVE THE FOLLOWING ATTRIBUTES:

APPLICATION:	WALL/SLOPE
PERFORMANCE:	HIGH
APPEARANCE:	HIGH
6. REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DEONTE STAINLESS STEEL BARS.

STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
7. GLASS FIBRE REINFORCED POLYMER (GFRP)

GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.

THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH THE PREFIX GIII DENOTE GRADE III GFRP BARS.
8. ROADWAY CLASSIFICATION: RFD 120.
9. ALL DIMENSIONS ARE IN MILLIMETERS ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH.
3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
4. CONSTRUCT ABUTMENTS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACINGS FOR ABUTMENTS. FORMWORK AND LATERAL BRACINGS SHALL NOT BE REMOVED UNTIL THE CONCRETE IN DECK HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
5. ALL EXPOSED EDGES TO RECEIVE A 20x20 CHAMFER.
6. ALL GIRDERS SHALL BE BRACED INDIVIDUALLY BY ATTACHING EACH END TO THE RESPECTIVE SUB-STRUCTURE ELEMENT IMMEDIATELY UPON ERECTION.

LANING DIMENSIONS ARE PERPENDICULAR TO THE CL OF TRAFFIC LANE
GIRDER SPACING IS ALONG THE CL OF ABUTMENT

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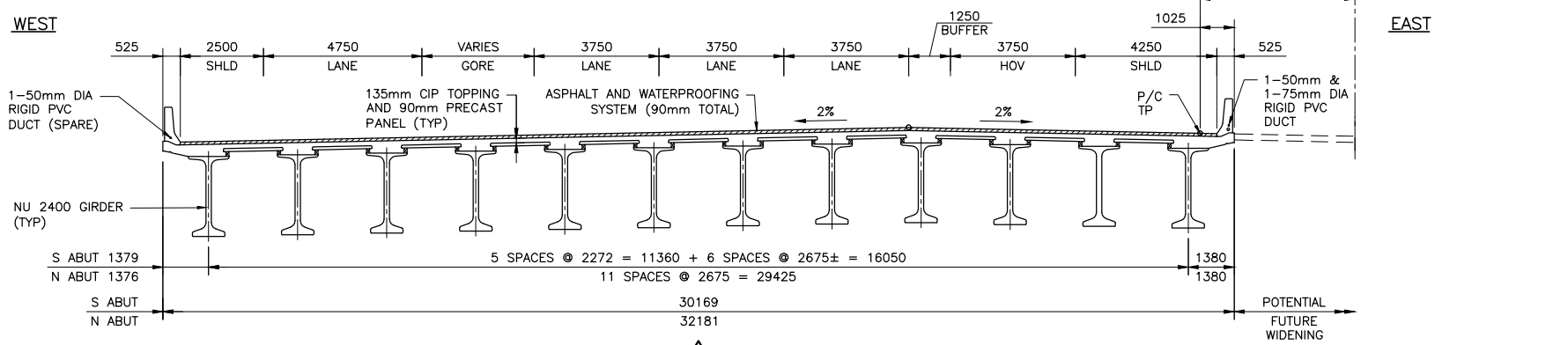
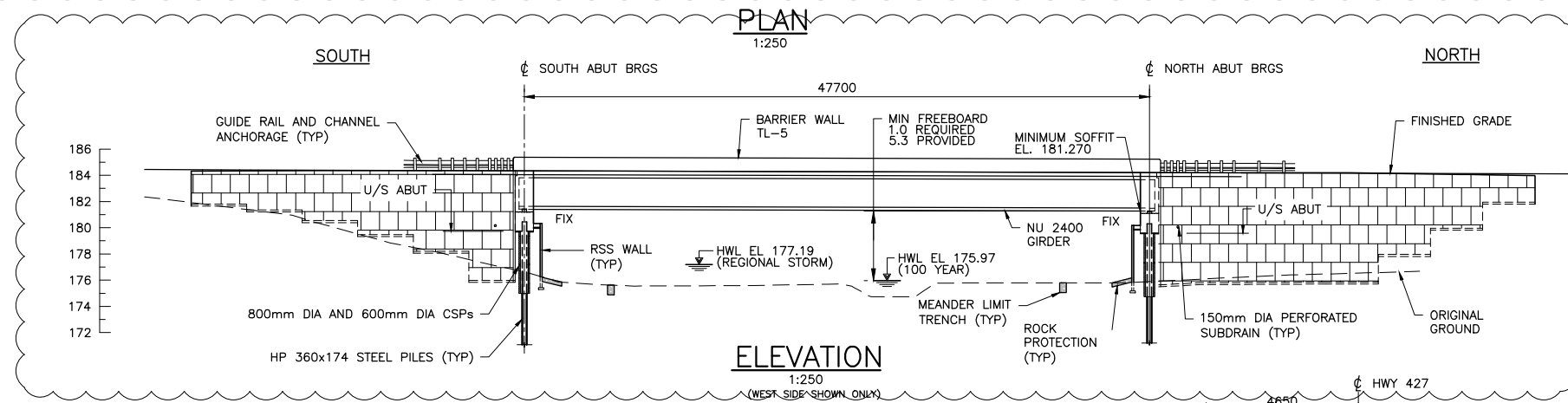
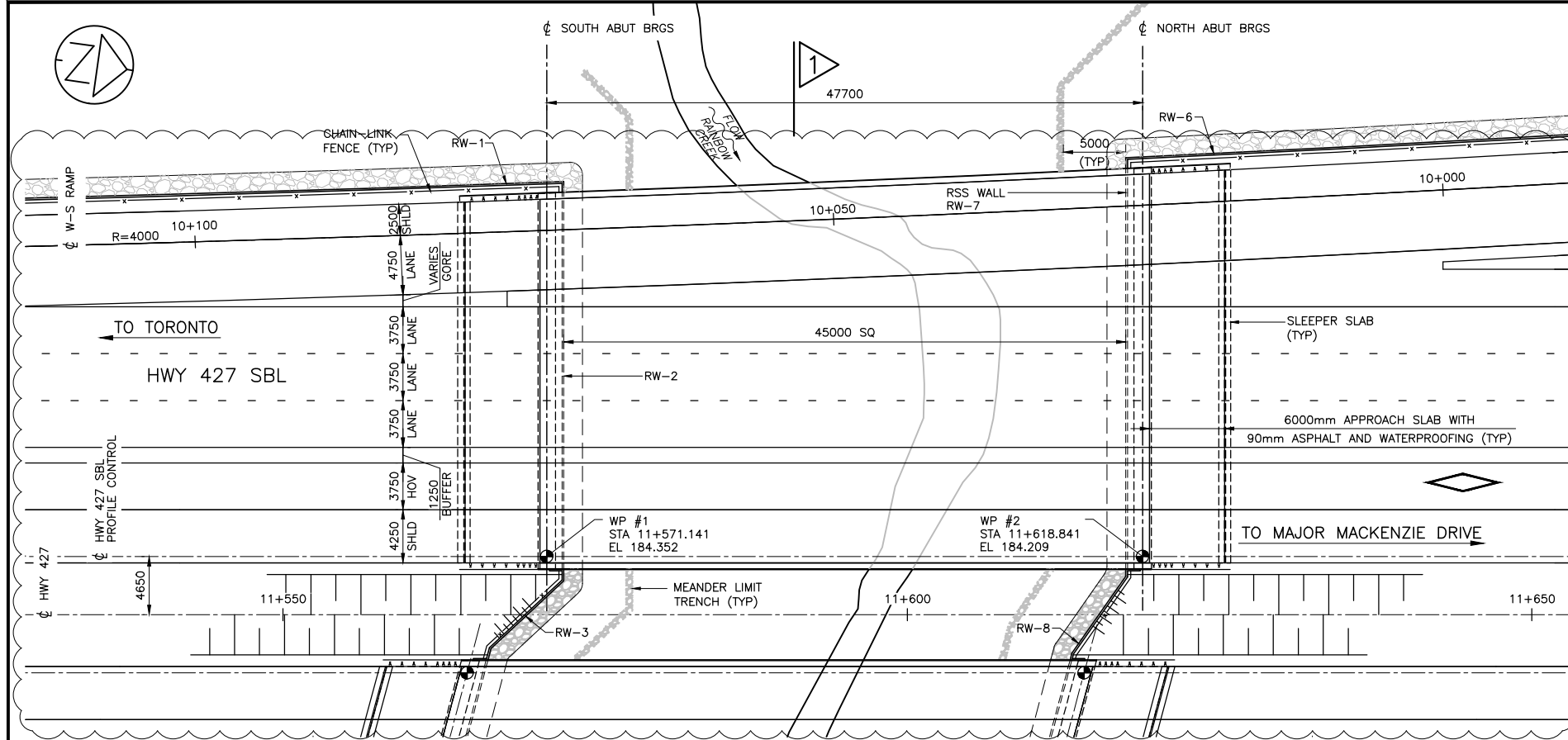
DATE	REVISIONS	BY	CHK	LEAD	PROJ. MAN.
18/06/18	90% SUBMISSION TO CA				
18/01/12	90% SUBMISSION TO CA				

SCALE : AS NOTED

DESIGNED	ZHONG LIU	
DRAWN	JENNIFER MEDEMA	
CHECKED	MICHAEL HATCH	
APPROVED LEAD ENGR.	TATIANA QJALA	
APPROVED PROJ. MANAGER	PETER BAMFORTH	
NAME (PRINT)	INIT.	DATE



HWY 427 EXPANSION							
HWY 427 NBL							
OVER RAINBOW CREEK BRIDGE							
GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	1A	STR	B11A	DWG	600	B



APPLICABLE STANDARD DRAWINGS:

- OPSD 3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
- OPSD 3101.150 WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENTS
- OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
- OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT

LIST OF DRAWINGS:

- 700 GENERAL ARRANGEMENT
- 701 BOREHOLE LOCATIONS AND SOIL STRATA
- 702 FOUNDATION LAYOUT
- 703 NORTH ABUTMENT DETAILS AND REINFORCEMENT
- 704 SOUTH ABUTMENT DETAILS AND REINFORCEMENT
- 705 RETAINED SOIL SYSTEM WALL LAYOUT-1
- 706 RETAINED SOIL SYSTEM WALL LAYOUT-2
- 707 PRESTRESSED GIRDERS AND BEARINGS (NU 2400)
- 708 PRESTRESSED GIRDER DETAILS
- 709 DECK LAYOUT AND SCREED ELEVATIONS
- 710 PRECAST DECK PANEL LAYOUT
- 711 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAIL I
- 712 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAIL II
- 713 DECK REINFORCEMENT
- 714 BARRIER WALL W/O RAILING, TL3 (GFRP REBAR WITH ANCHOR HEAD)
- 715 6000 mm APPROACH SLABS
- 716 EXPANSION JOINT AND SLEEPER SLAB (10mm<MOVEMENT<=40mm)
- 717 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB (10mm<MOVEMENT<=40mm)
- 718 STANDARD AND MISCELLANEOUS DETAILS
- 719 PILE DRIVING CONTROL
- 720 ELECTRICAL EMBEDDED WORK

LIST OF ABBREVIATIONS:

- WP WORKING POINT
- CIP CAST IN PLACE
- P/C PROFILE CONTROL
- T/P TOP OF PAVEMENT

LEGEND:

- ⊕ BOREHOLE
- Rock Protection and Meander Limit Hatch
- PRECAST CONCRETE PANEL
- NEW ASPHALT AND WATERPROOFING

GENERAL NOTES:

1. DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
2. LIVE LOAD: CL-625-ONT.
3. CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
4. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100±25
DECK	
TOP	70±20
BOTTOM	40±10
REMAINDER UNLESS OTHERWISE NOTED	70±20
5. RETAINED SOIL SYSTEM (RSS) SHALL HAVE THE FOLLOWING ATTRIBUTES:

APPLICATION:	WALL/SLOPE
PERFORMANCE:	HIGH
APPEARANCE:	HIGH
6. REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DEONTE STAINLESS STEEL BARS.

STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
7. GLASS FIBRE REINFORCED POLYMER (GFRP)

GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE I, GRADE II OR GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.

THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH THE PREFIX GI DENOTE GRADE I GFRP BARS, BAR MARKS WITH THE PREFIX GII DENOTE GRADE II GFRP BARS AND BAR MARKS WITH THE PREFIX GIII DENOTE GRADE III GFRP BARS.
8. ROADWAY CLASSIFICATION: RFD 120.
9. ALL DIMENSIONS ARE IN MILLIMETERS ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH.
3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
4. CONSTRUCT ABUTMENTS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACINGS FOR ABUTMENTS. FORMWORK AND LATERAL BRACINGS SHALL NOT BE REMOVED UNTIL THE CONCRETE IN DECK HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
5. ALL EXPOSED EDGES TO RECEIVE A 20x20 CHAMFER.
6. ALL GIRDERS SHALL BE BRACED INDIVIDUALLY BY ATTACHING EACH END TO THE RESPECTIVE SUB-STRUCTURE ELEMENT IMMEDIATELY UPON ERECTION.

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 MODIFIED: 6/18/2018 2:24:28 PM BY: DAVID SANOSA
 DATE PLOTTED: 6/18/2018 2:54:15 PM BY: LEE, MIA

DATE	REVISIONS	BY	CHK	LEAD	PROJ. MAN.
18/06/18	90% SUBMISSION TO CA				
18/01/12	90% SUBMISSION TO CA				

SCALE :
AS NOTED

DESIGNED	ZHONG LIU
DRAWN	JENNIFER MEDEMA
CHECKED	MICHAEL HATCH
APPROVED LEAD ENGR.	TATIANA QJALA
APPROVED PROJ. MANAGER	PETER BAMFORTH



HWY 427 EXPANSION HWY 427 SBL OVER RAINBOW CREEK BRIDGE							
GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	1A	STR	B11B	DWG	700	B

APPLICABLE STANDARD DRAWINGS: GENERAL NOTES:

OPSD 0803.010 BACKFILL AND COVER FOR CONCRETE CULVERTS

- DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
 - MINISTRY OF TRANSPORTATION OF ONTARIO CONCRETE CULVERT DESIGN AND DETAILING MANUAL
- LIVE LOAD: CL-625-ONT.
- CLASS OF CONCRETE
 - PRECAST CULVERT 35 MPa
 - REMAINDER CONCRETE 30 MPa
- CLEAR COVER TO REINFORCING STEEL
 - CUT OFF WALL 100±25 (CAST AGAINST EARTH)
 - PRECAST CULVERT 50±10
 - REMAINDER 70±20 UNLESS OTHERWISE NOTED
- REINFORCING STEEL
 - REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
 - UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.
 - BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM END DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
- PROTECTION SYSTEM SHALL CONFORM TO PERFORMANCE LEVEL 2.
- ROADWAY CLASSIFICATION: UAD 80.
- ALL DIMENSIONS ARE IN MILLIMETERS ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.


LIST OF ABBREVIATIONS:

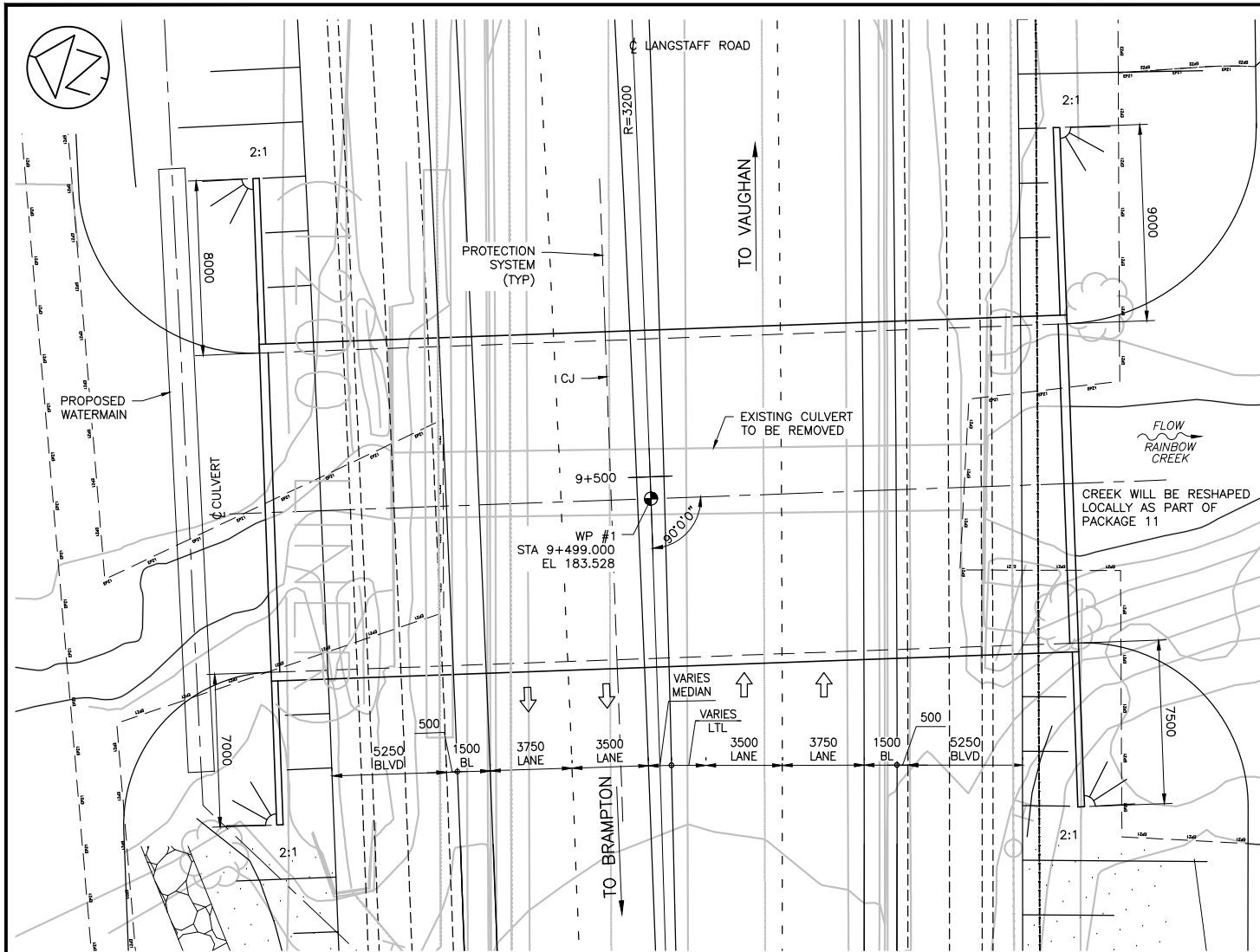
PVI POINT OF VERTICAL INTERSECTION
 WP WORKING POINT
 BL BIKE LANE
 PVI POINT OF VERTICAL INTERSECTION
 WP WORKING POINT
 LTL LEFT TURN LANE

LIST OF DRAWINGS:

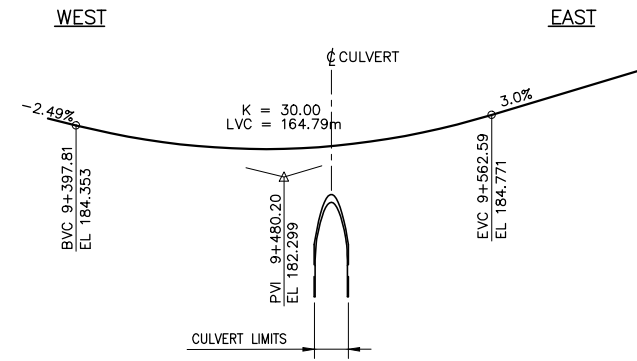
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 501 BOREHOLE LOCATIONS AND SOIL STRATA
 502 FOUNDATION LAYOUT AND FOOTING REINFORCEMENT

LEGEND:

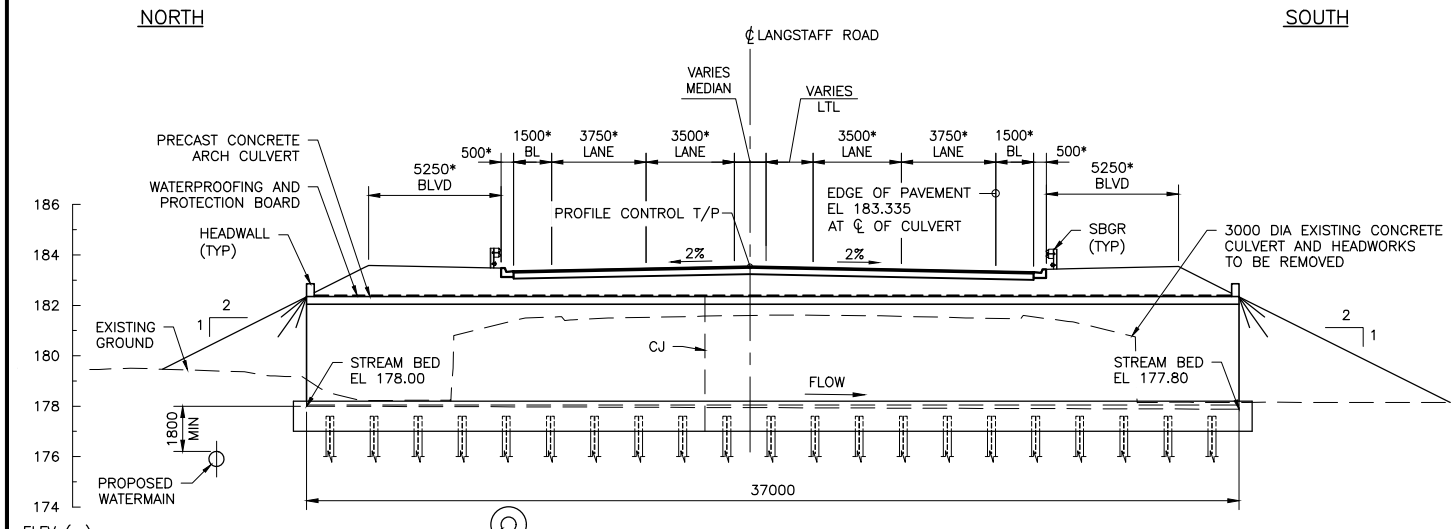
⊕ BOREHOLE
 ROCK PROTECTION



PLAN
1:150

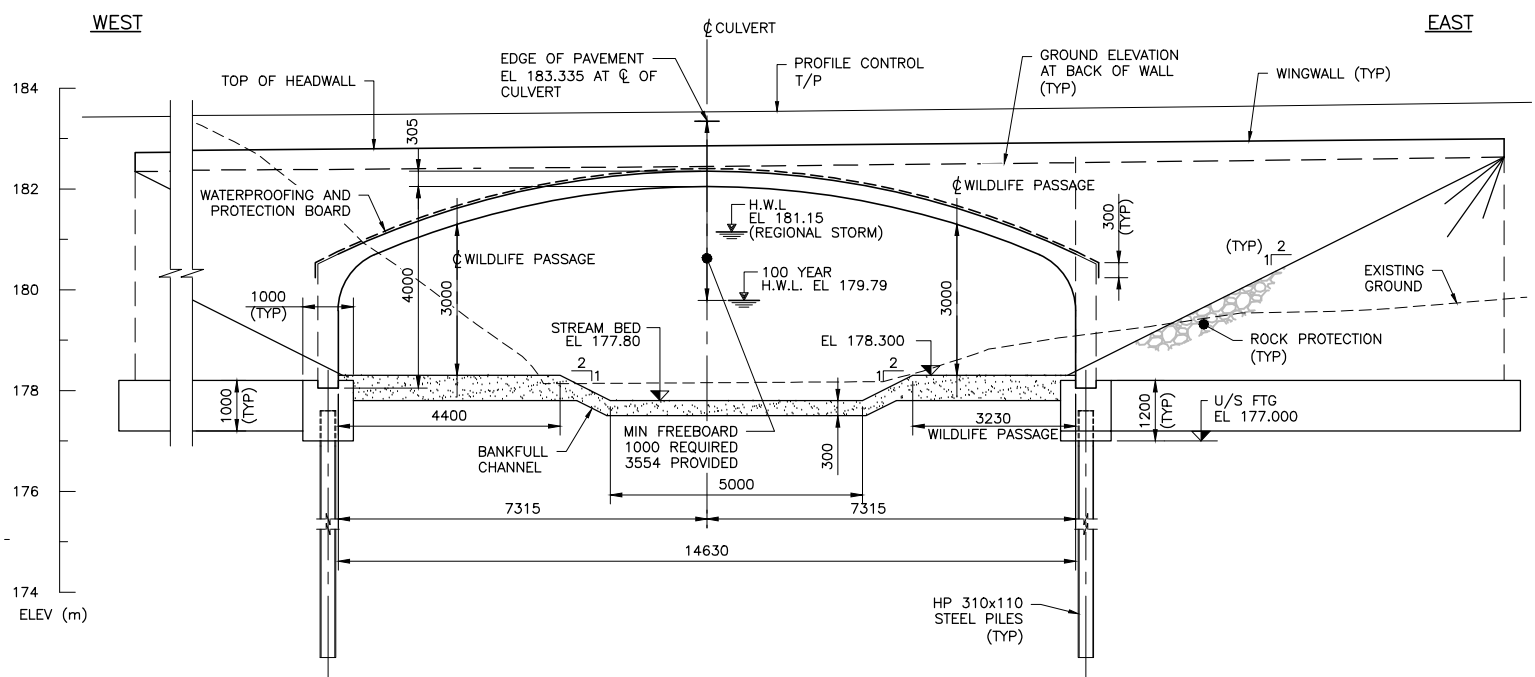


PROFILE OF LANGSTAFF ROAD
NTS



LONGITUDINAL SECTION
1:150

* DIMENSIONS ARE PERPENDICULAR TO C OF TRAFFIC LANE
 - FOR STAGING REFER TO HIGHWAY DRAWINGS



SOUTH ELEVATION
1:75

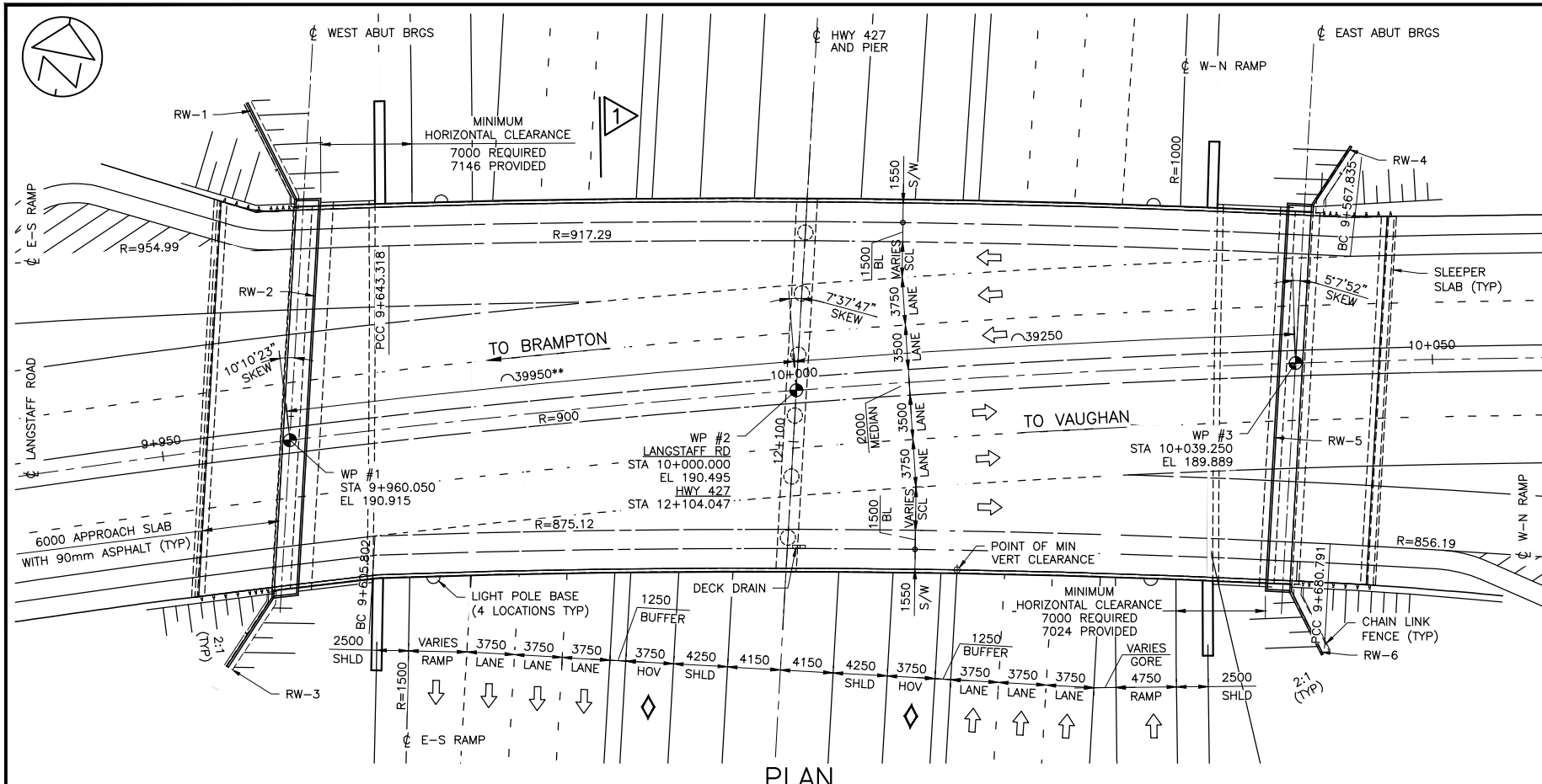
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DATE	REVISIONS	BY	CHK	LEAD	PROJ. MGR.
18/05/25	90% SUBMISSION TO CA				
18/04/27	90% SUBMISSION TO CA				

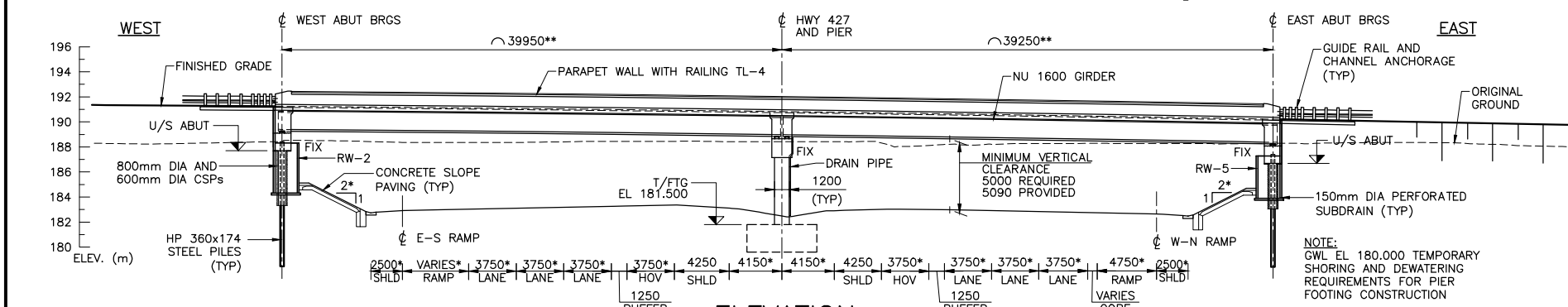
SCALE :	AS NOTED
DESIGNED	TOM GIJOT
DRAWN	SCOTT CLAYTON
CHECKED	ZHONG LIU
APPROVED LEAD ENGR.	TATIANA GJALA
APPROVED PROJ. MANAGER	
NAME (PRINT)	INIT. DATE



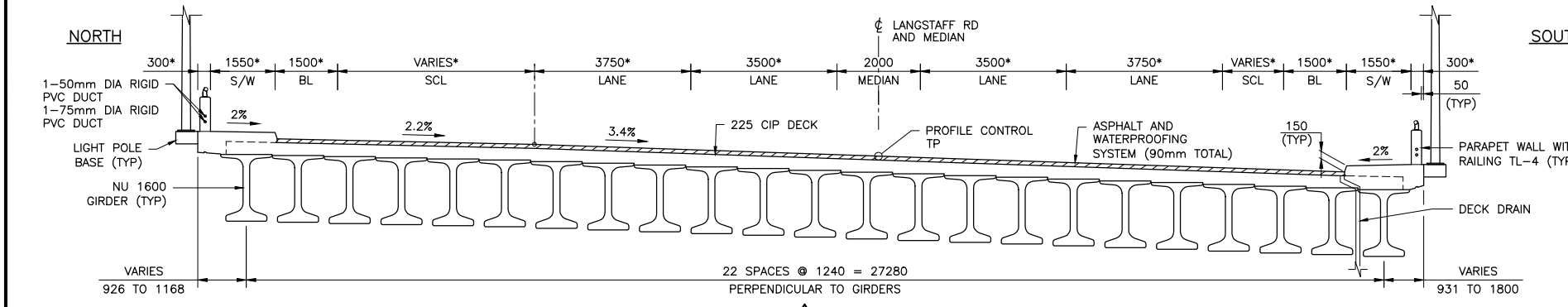
HWY 427 EXPANSION LANGSTAFF ROAD OVER RAINBOW CREEK 37X-2430/B0 GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	4A	STR	B12	DWG	500	B



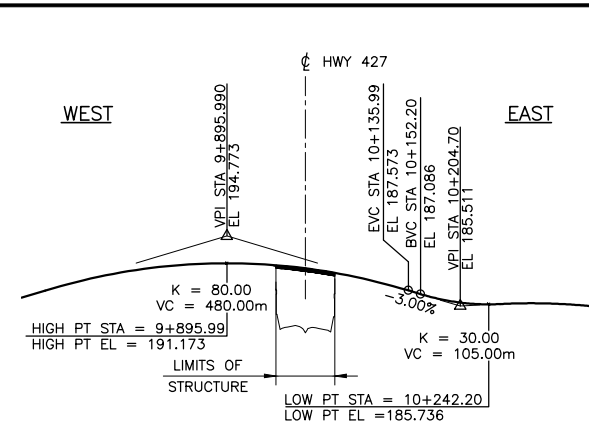
PLAN
1:250
** DIMENSIONS ARE MEASURED ALONG CL LANGSTAFF ROAD



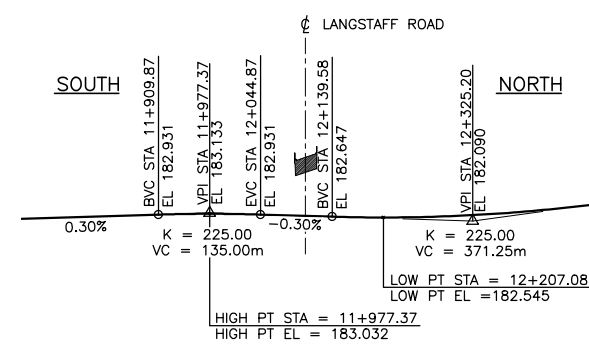
ELEVATION
1:250
* DIMENSIONS ARE PERPENDICULAR TO CL OF HWY 427 (RSS WALLS NOT SHOWN FOR CLARITY)



SOUTH
1:75
* DIMENSIONS ARE PERPENDICULAR TO CL OF LANGSTAFF ROAD



PROFILE OF LANGSTAFF ROAD
NTS



PROFILE OF HWY 427
NTS

- GENERAL NOTES:**
- DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
 - LIVE LOAD: CL-625-ONT.
 - CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
 - CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100 ± 25
DECK TOP	70 ± 20
DECK BOTTOM	40 ± 10
REMAINDER UNLESS OTHERWISE NOTED	70 ± 20
 - REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DEONTE STAINLESS STEEL BARS.

STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
 - GLASS FIBRE REINFORCED POLYMER (GFRP)

GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE I AS SPECIFIED IN THE CONTRACT DOCUMENTS.

THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH THE PREFIX GI DENOTE GRADE I GFRP BARS.
 - RETAINED SOIL SYSTEM (RSS) SHALL HAVE THE FOLLOWING ATTRIBUTES:

APPLICATION	WALL/SLOPE
PERFORMANCE	HIGH
APPEARANCE	HIGH
 - ROADWAY CLASSIFICATION: UAU 80.
 - ALL DIMENSIONS ARE IN MILLIMETERS ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

APPLICABLE STANDARD DRAWINGS:

- OPSD 3101.150 WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENTS
- OPSD 3340.150 DECK DRAINS WITH TRANSVERSE BAR OPENINGS
- OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
- OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT

LIST OF DRAWINGS:

- 600 GENERAL ARRANGEMENT
- 601 BOREHOLE LOCATIONS AND SOIL STRATA
- 602 FOUNDATION LAYOUT
- 603 ABUTMENT DETAILS AND REINFORCEMENT
- 604 RETAINED SOIL SYSTEMS WALL LAYOUT
- 605 PIER DETAILS AND REINFORCEMENT
- 606 PRESTRESSED NU GIRDERS AND BEARINGS (NU 1600)
- 607 PRESTRESSED NU GIRDER - DETAILS
- 608 DECK LAYOUT & SCREED ELEVATIONS
- 609 DECK REINFORCEMENT
- 610 PARAPET WALL WITH RAILING ON SIDEWALK, TL-4 (GFRP REBAR)
- 611 RAILING ON PARAPET
- 612 6000 mm APPROACH SLABS
- 613 EXPANSION JOINT AND SLEEPER SLAB (10mm<MOVEMENT<=40mm)
- 614 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB (10mm<MOVEMENT<=40mm)
- 615 DETAILS OF CONCRETE SLOPE PAVING
- 616 STANDARD AND MISCELLANEOUS DETAILS
- 617 PILE DRIVING CONTROL
- 618 ELECTRICAL EMBEDDED WORK - 1
- 619 ELECTRICAL EMBEDDED WORK - 2

CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
- BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH.
- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
- CONSTRUCT ABUTMENTS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACINGS FOR ABUTMENTS. FORMWORK AND LATERAL BRACINGS SHALL NOT BE REMOVED UNTIL THE CONCRETE IN DECK HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
- ALL EXPOSED EDGES TO RECEIVE A 20x20 CHAMFER.
- ALL GIRDERS SHALL BE BRACED INDIVIDUALLY BY ATTACHING EACH END TO THE RESPECTIVE SUB-STRUCTURE ELEMENT IMMEDIATELY UPON ERECTION.

LIST OF ABBREVIATIONS:

- CIP CAST IN PLACE
- VPI VERTICAL POINT OF INTERSECTION
- WP WORKING POINT
- T/F TOP OF FOOTING

LEGEND:

- ⊕ BOREHOLE
- ▨ NEW ASPHALT AND WATERPROOFING

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 DATE PLOTTED: 5/24/2018 4:07:41 PM BY: CLAYTON, SCOTT

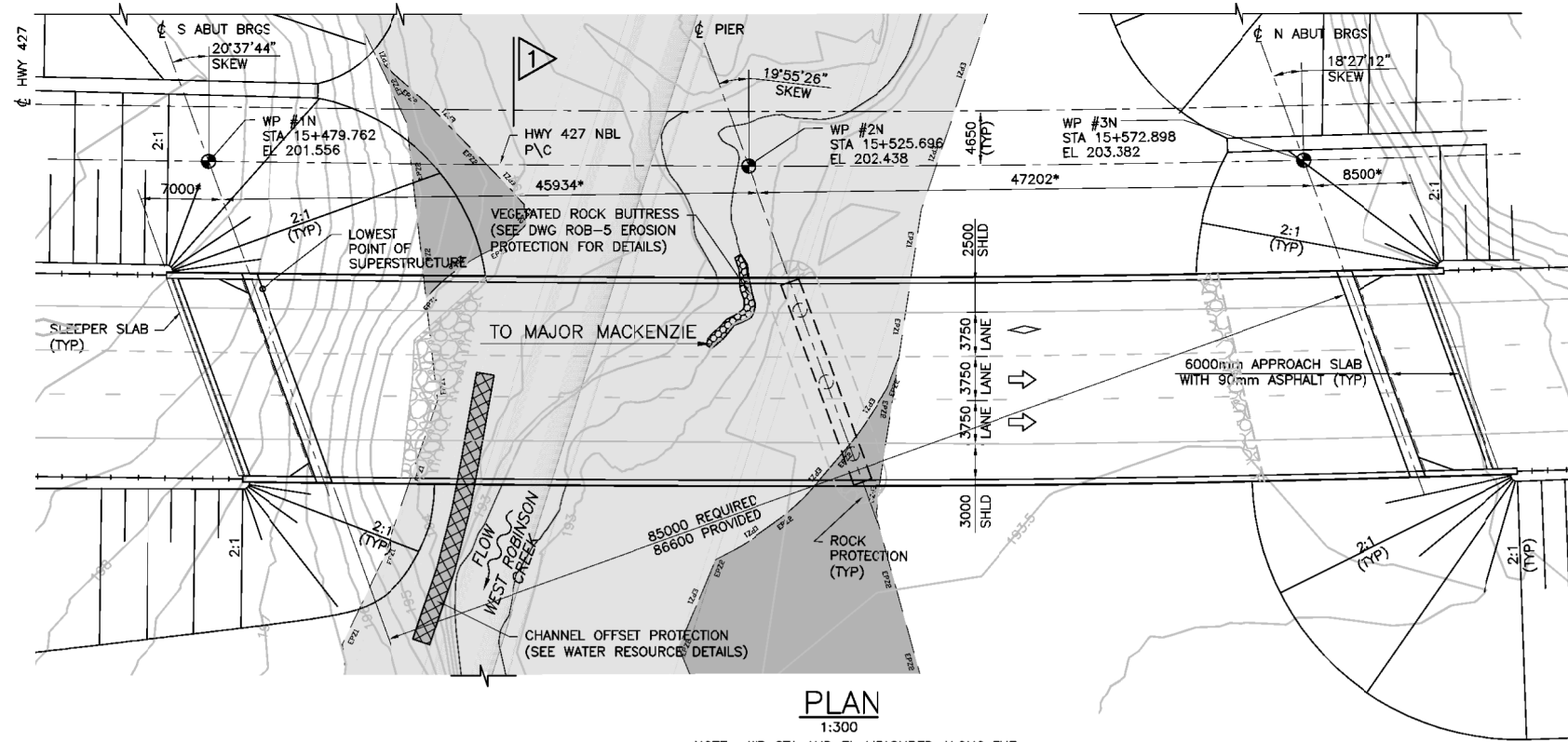
DATE	REVISIONS	BY	CHK	LEAD	PROJ. MAN.
18/05/25	90% SUBMISSION TO CA				
18/04/27	90% SUBMISSION TO CA				

SCALE :
AS NOTED

DESIGNED	ZHONG LIU
DRAWN	JENNIFER MEDEMA
CHECKED	MICHAEL HATCH
APPROVED LEAD ENG.	TATIANA GJALA
APPROVED PROJ. MANAGER	



TITLE							
HWY 427 AT LANGSTAFF ROAD UNDERPASS							
SITE 37X-2429/B0							
GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	4	STR	B13	DWG	600	B



PLAN
1:300

NOTE: WP STA AND EL MEASURED ALONG THE HWY 427 CL WITH A 4.65m OFFSET

LIST OF DRAWINGS:

- 500 GENERAL ARRANGEMENT
- 501 BOREHOLE LOCATIONS AND SOIL STRATA
- 502 FOUNDATION LAYOUT AND FOOTING REINFORCEMENT
- 503 ABUTMENT DETAILS AND REINFORCEMENT
- 504 WINGWALLS
- 505 PIER DETAILS AND REINFORCEMENT
- 506 PRESTRESSED NU GIRDERS AND BEARINGS (NU 2400)
- 507 PRESTRESSED NU GIRDERS - DETAILS
- 508 DECK LAYOUT & SCREED ELEVATIONS
- 509 PRECAST PANELS LAYOUT
- 510 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS I
- 511 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS II
- 512 DECK REINFORCEMENT
- 513 BARRIER WALL WITHOUT RAILING, TL-5 (GFRP REBAR WITH ANCHOR HEAD)
- 514 600mm APPROACH SLABS
- 515 EXPANSION JOINT AND SLEEPER SLAB (10mm<MOVEMENTS< 40mm)
- 516 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB
- 517 STANDARD AND MISCELLANEOUS DETAILS
- 518 PILE DRIVING CONTROL
- 519 ELECTRICAL EMBEDDED WORK

GENERAL NOTES:

1. DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
2. LIVE LOAD: CL-625-0NT.
3. CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
4. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100±25
DECK	70±20
TOP	40±10
BOTTOM	70±20
REMAINDER UNLESS OTHERWISE NOTED	
5. REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DEONTE STAINLESS STEEL BARS.

STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

TENSION LAP SPLICES SHALL BE CLASS B, UNLESS SHOWN OTHERWISE.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
6. GLASS FIBRE REINFORCED POLYMER (GFRP)

GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.

THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH THE PREFIX 'GIII' DENOTE GRADE III GFRP BARS.
7. ROADWAY CLASSIFICATION: RFD 120.
8. ALL DIMENSIONS ARE IN MILLIMETERS, ALL STATIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH.
3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
4. CONSTRUCT ABUTMENTS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACINGS FOR ABUTMENTS. FORMWORK AND LATERAL BRACINGS SHALL NOT BE REMOVED UNTIL THE CONCRETE IN DECK HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
5. ALL EXPOSED EDGES TO RECEIVE A 20x20 CHAMFER.
6. ALL GIRDERS SHALL BE BRACED INDIVIDUALLY BY ATTACHING EACH END TO THE RESPECTIVE SUB-STRUCTURE ELEMENT IMMEDIATELY UPON ERECTION.

APPLICABLE STANDARD DRAWINGS:

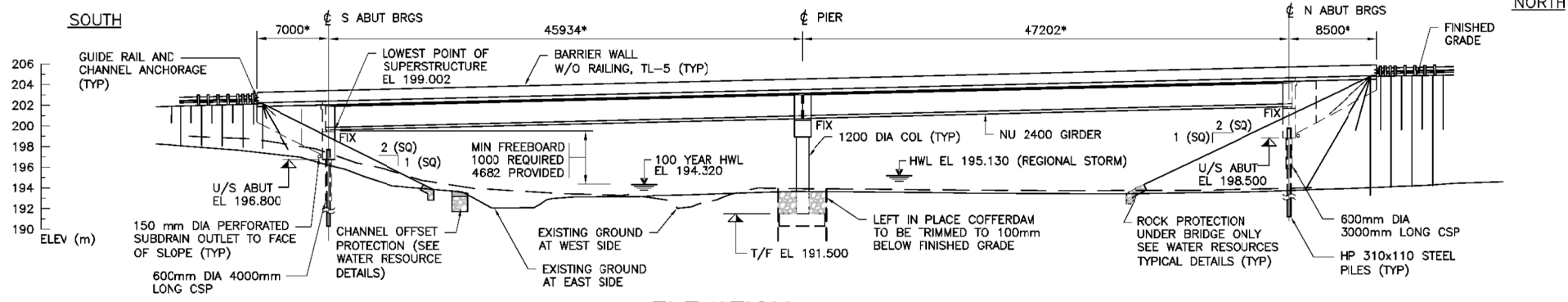
- OPSD 3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
- OPSD 3101.150 WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENTS
- OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
- OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT

LIST OF ABBREVIATIONS:

- WP WORKING POINT
- CIP CAST IN PLACE
- T/F TOP OF FOOTING
- VPI VERTICAL POINT OF INTERSECTION
- P/C PROFILE CONTROL

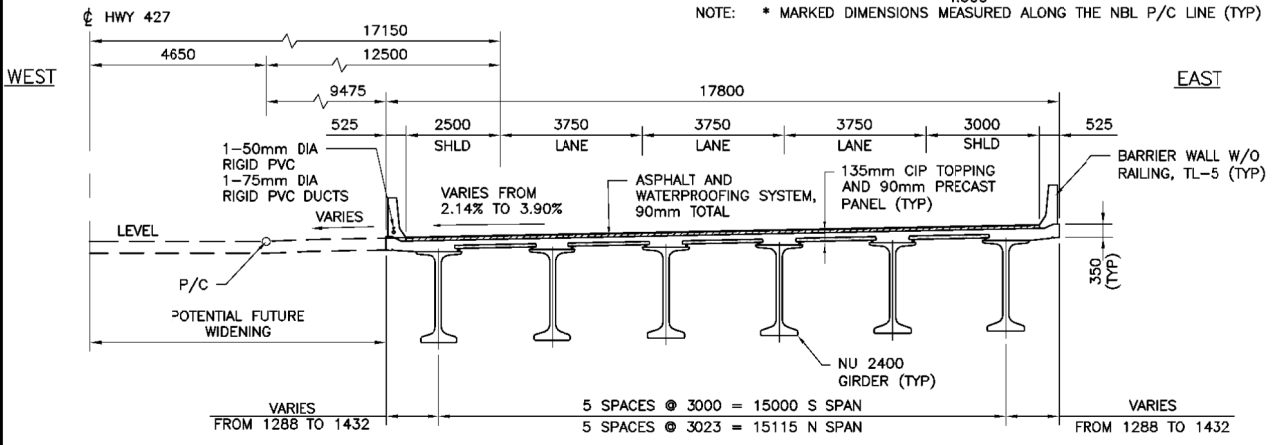
LEGEND:

- NEW ASPHALT AND WATERPROOFING
- ROCK PROTECTION
- PRECAST CONCRETE

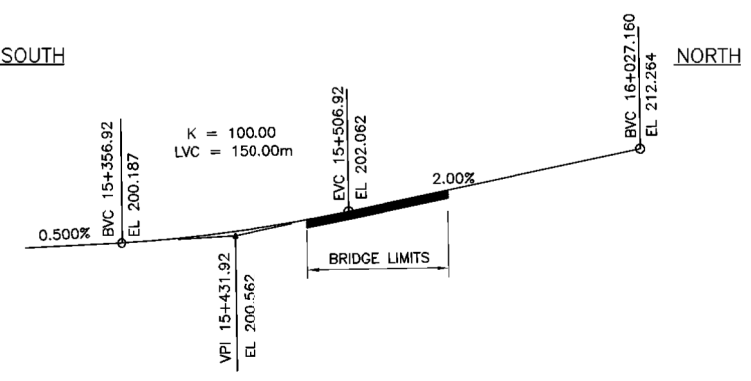


ELEVATION
1:300

NOTE: * MARKED DIMENSIONS MEASURED ALONG THE NBL P/C LINE (TYP)



PROFILE OF HWY 427
NTS



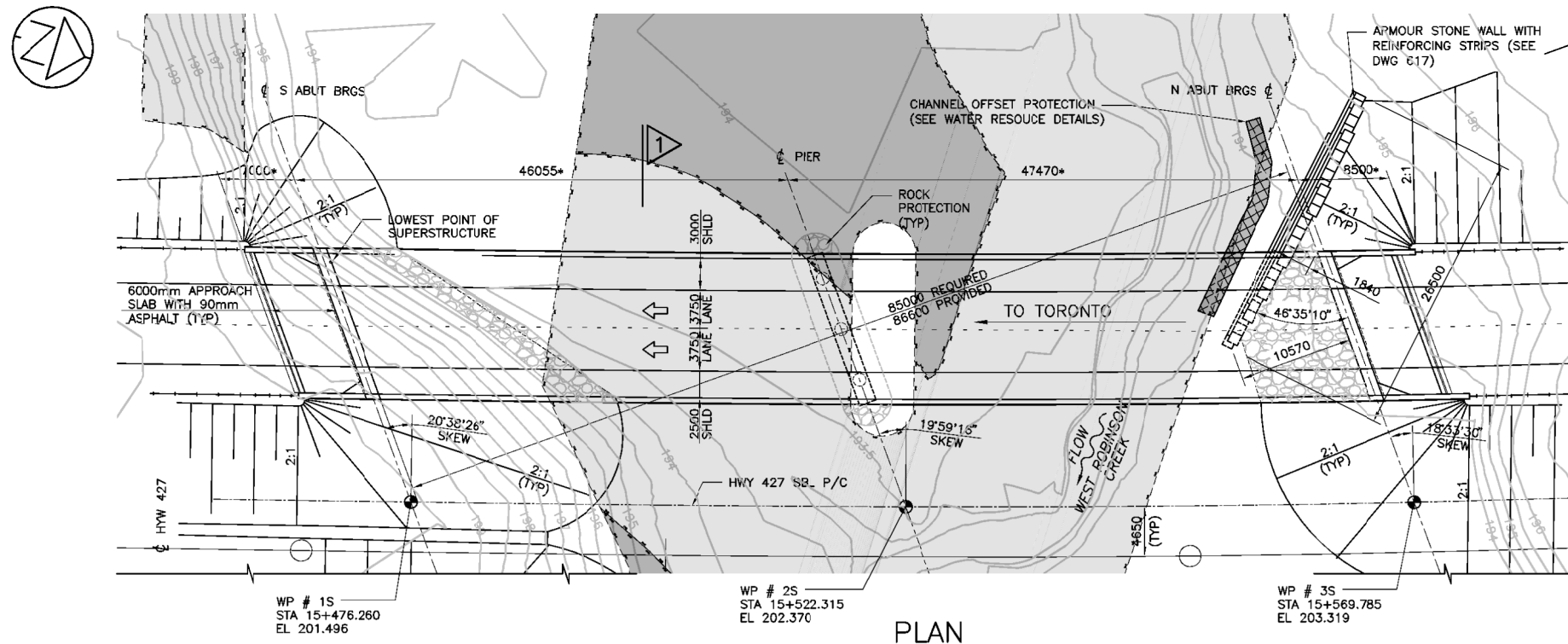
DATE	REVISIONS	BY	CHK	LEAD	PROJ
C	18/06/18				90% SUBMISSION TO CA
B	18/06/01				90% SUBMISSION TO CA
A	18/01/05				90% SUBMISSION TO CA

DESIGNED	SHELLEY HUANG
DRAWN	FEI PANG
CHECKED	NIMA MAHMOUDI
APPROVED LEAD ENG.	TATIANA QUILA
APPROVED PROJ. MANAGER	PETER BAMFORTH
NAME (PRINT)	INT.
	DATE

CONSULTANT	DESIGNED	SHELLEY HUANG
	DRAWN	FEI PANG
	CHECKED	NIMA MAHMOUDI
	APPROVED LEAD ENG.	TATIANA QUILA
	APPROVED PROJ. MANAGER	PETER BAMFORTH
	NAME (PRINT)	INT.
		DATE



HWY 427 EXPANSION OVER WEST ROBINSON CREEK BRIDGE							
GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	3A	STR	B16A	DWG	500	C



PLAN

NOTE: WP STA AND EL MEASURED ALONG HWY 427 WITH A 4.65m OFFSET

APPLICABLE STANDARD DRAWINGS:

- OPSD 3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
- OPSD 3101.150 WALLS - ABUTMENT, BACKFILL, MINIMUM GRANULAR REQUIREMENTS
- OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
- OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT

LIST OF DRAWINGS:

- 600 GENERAL ARRANGEMENT
- 601 BORE-HOLE LOCATIONS AND SOIL STRATA
- 602 FOUNDATION LAYOUT AND FOOTING REINFORCEMENT
- 603 ABUTMENT DETAILS AND REINFORCEMENT
- 604 WINGWALLS
- 605 PIER DETAILS AND REINFORCEMENT
- 606 PRESTRESSED NU GIRDERS AND BEARINGS (NU 2400)
- 607 PRESTRESSED NU GIRDERS - DETAILS
- 608 DECK LAYOUT & SCREED ELEVATIONS
- 609 PRECAST DECK PANELS LAYOUT
- 610 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS I
- 611 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS II
- 612 DECK REINFORCEMENT
- 613 BARRIER WALL WITHOUT RAILING, TL-5 (GFRP REBAR WITH ANCHOR HEAD)
- 614 6000mm APPROACH SLABS
- 615 EXPANSION JOINT AND SLEEPER SLAB (10mm<MOVEMENT <=40mm)
- 616 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB
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GENERAL NOTES:

1. DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
2. LIVE LOAD: CL-625-ONT.
3. CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
4. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100±25
DECK TOP	70±20
DECK BOTTOM	40±10
REMAINDER UNLESS OTHERWISE NOTED	70±20
5. REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.

STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

TENSION LAP SPLICES SHALL BE CLASS B, UNLESS SHOWN OTHERWISE.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
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GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.

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BAR MARKS WITH THE PREFIX GIII DENOTE GRADE III GFRP BARS.
7. ROADWAY CLASSIFICATION: RFD 120.
8. ALL DIMENSIONS ARE IN MILLIMETERS, ALL STATIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

CONSTRUCTION NOTES:

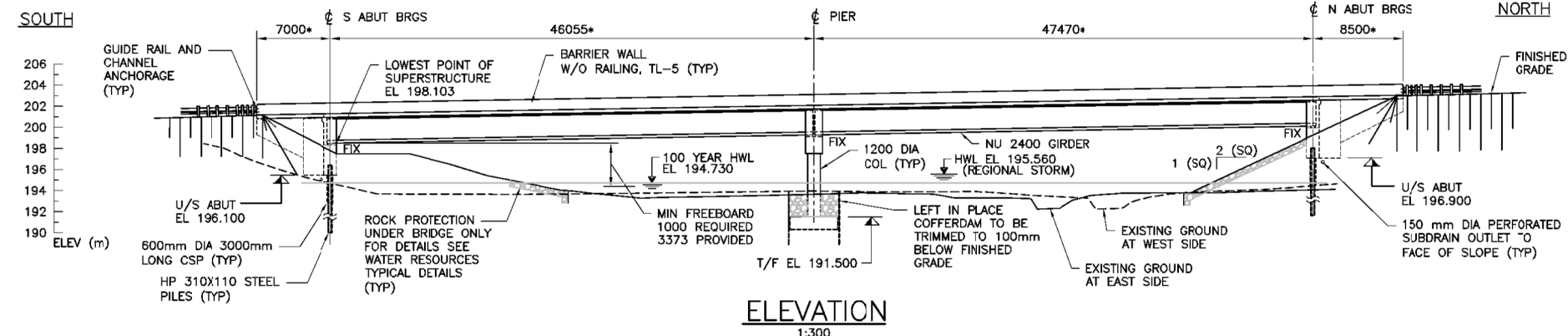
1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
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3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
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LIST OF ABBREVIATIONS:

- WP WORKING POINT
- CIP CAST IN PLACE
- T/F TOP OF FOOTING
- VPI VERTICAL POINT OF INTERSECTION
- P/C PROFILE CONTROL

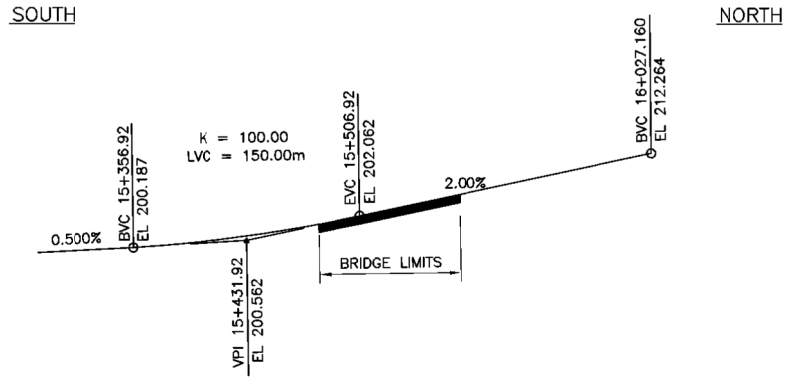
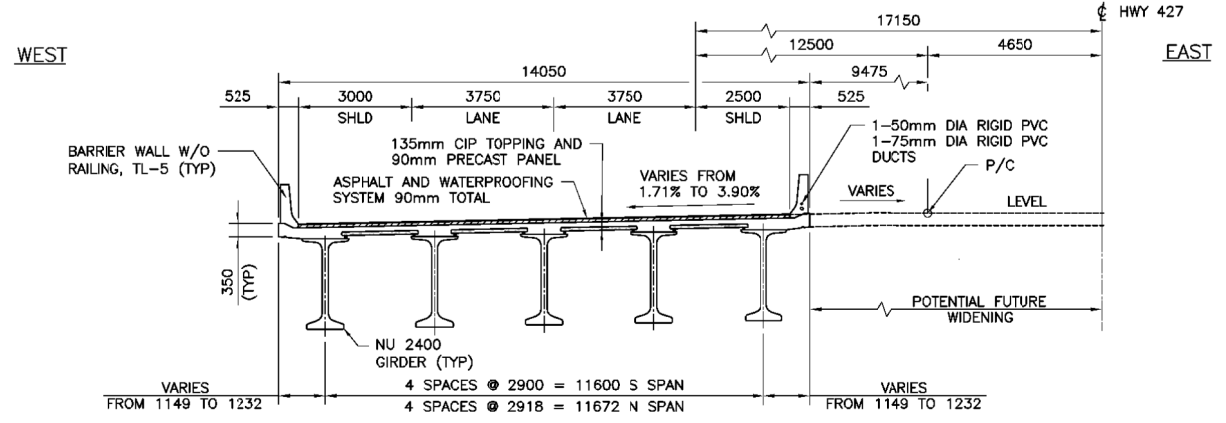
LEGEND:

- NEW ASPHALT AND WATERPROOFING
- ROCK PROTECTION
- PRECAST CONCRETE



ELEVATION

NOTE: * MARKED DIMENSIONS MEASURED ALONG THE SBL P/C LINE (TYP)



PROFILE OF HWY 427

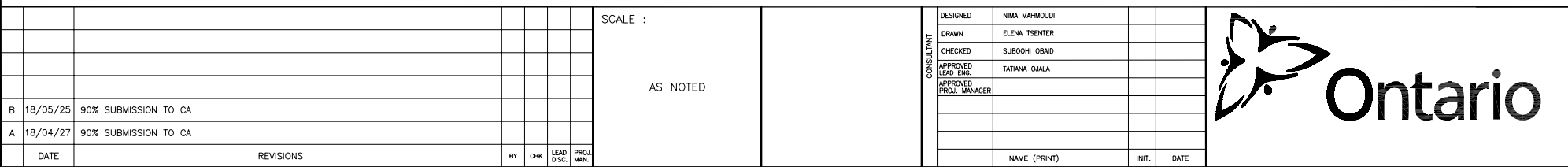
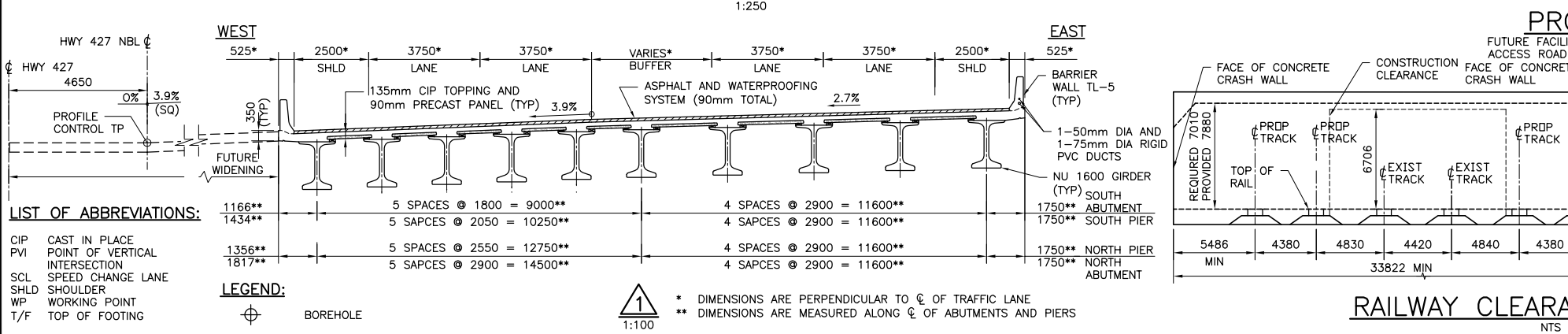
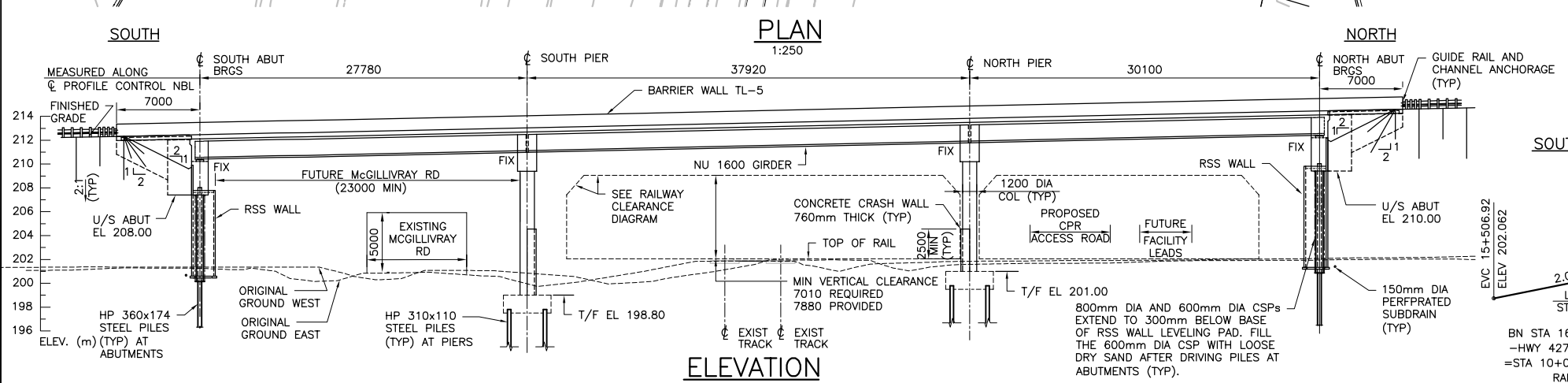
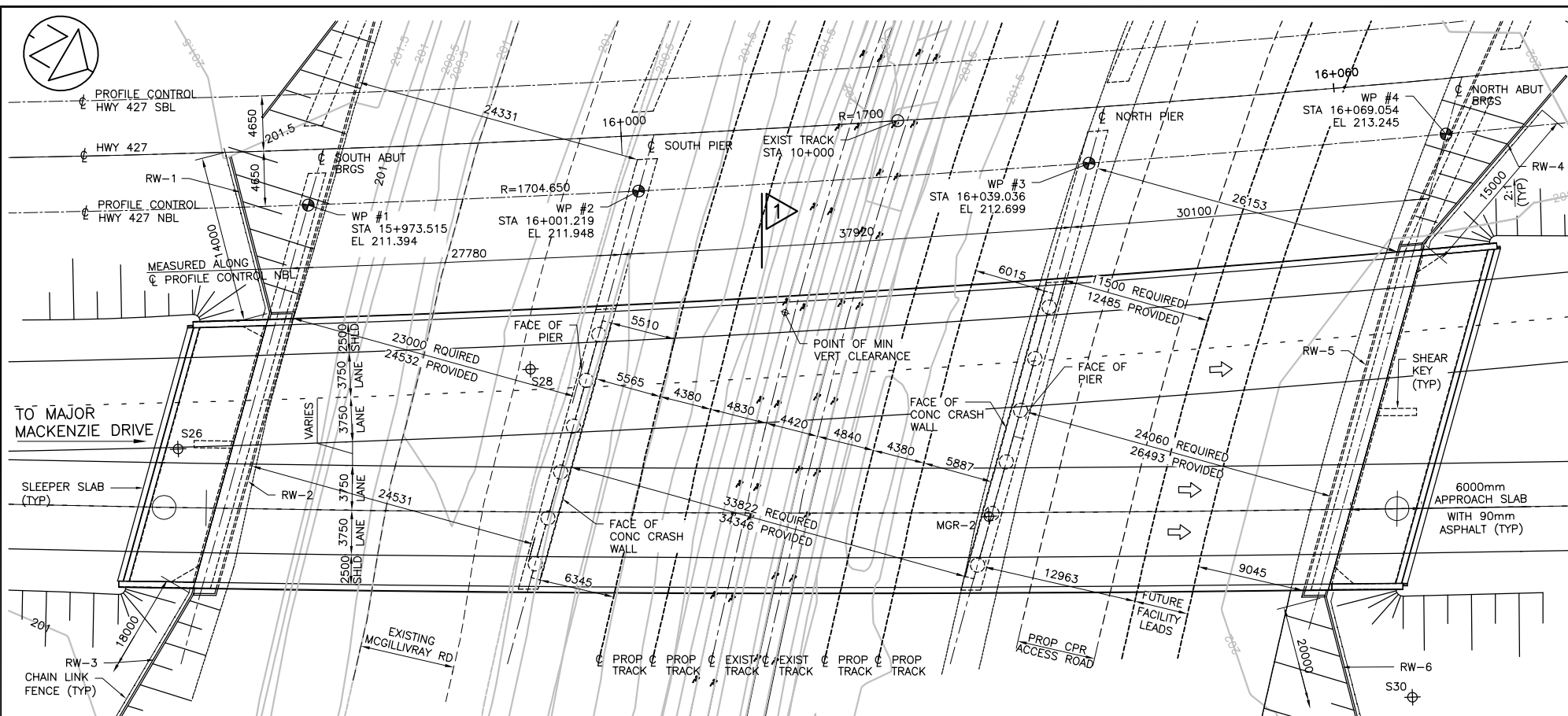
NTS

DATE	REVISIONS	BY	CHK	LEAD	PROJ.
C 18/06/18	90% SUBMISSION TO CA				
B 18/06/01	90% SUBMISSION TO CA				
A 18/01/05	90% SUBMISSION TO CA				

DESIGNED	SHELLY HUANG
DRAWN	FEI PANG
CHECKED	NIMA MAHMOUDI
APPROVED LEAD ENG.	TATIANA CUALA
APPROVED PROJ. MANAGER	PETER BAMFORTH
NAME (PRINT)	INT. DATE



HWY 427 EXPANSION OVER WEST ROBINSON CREEK BRIDGE							
GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	3A	STR	B16B	DWG	600	C



- APPLICABLE STANDARD DRAWINGS:**
- OPSD 3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
 - OPSD 3101.150 WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENTS
 - OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
 - OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
 - OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
 - OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT
- GENERAL NOTES:**
- DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
 - CP RAIL STANDARDS, GUIDELINES AND POLICY
 - LIVE LOAD: CL-625-ONT.
 - CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
 - CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100 ± 25
DECK	
TOP	70 ± 20
BOTTOM	40 ± 10
REMAINDER (UNLESS OTHERWISE NOTED)	70 ± 20
 - REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.

STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
 - GLASS FIBRE REINFORCED POLYMER (GFRP)

GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE I, GRADE II OR GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.

THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH THE PREFIX GI DENOTE GRADE I GFRP BARS, BAR MARKS WITH THE PREFIX GII DENOTE GRADE II GFRP BARS AND BAR MARKS WITH THE PREFIX GIII DENOTE GRADE III GFRP BARS.
 - ROADWAY CLASSIFICATION: RFD 120.
 - ALL DIMENSIONS ARE IN MILLIMETERS ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

- LIST OF DRAWINGS:**
- 500 GENERAL ARRANGEMENT
 - 501 BOREHOLE LOCATION AND SOIL STRATA I
 - 502 BOREHOLE LOCATION AND SOIL STRATA II
 - 503 FOUNDATION DETAIL AND PILE LAYOUT I
 - 504 FOUNDATION DETAIL AND PILE LAYOUT II
 - 505 SOUTH ABUTMENT
 - 506 NORTH ABUTMENT
 - 507 WINGWALLS
 - 508 SOUTH PIER
 - 509 NORTH PIER
 - 510 RETAINED SOIL SYSTEM
 - 511 PRESTRESSED NU GIRDERS AND BEARINGS I
 - 512 PRESTRESSED NU GIRDERS AND BEARINGS II
 - 513 PRESTRESSED NU GIRDERS AND BEARINGS III
 - 514 PRESTRESSED NU GIRDERS - DETAILS
 - 515 DECK DETAILS
 - 516 PRECAST PANELS LAYOUT
 - 517 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS I
 - 518 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS II
 - 519 DECK REINFORCEMENT I
 - 520 DECK REINFORCEMENT II
 - 521 BARRIER WALL WITHOUT RAILING, TL-5 (GFRP REBAR WITH ANCHOR HEAD)
 - 522 6000mm APPROACH SLAB
 - 523 EXPANSION JOINT AND SLEEPER SLAB (10mm MOVEMENT - 40mm)
 - 524 STRIP SEAL EXPANSION JOINT FOR SLEEPER
 - 525 STANDARD AND MISCELLANEOUS DETAILS
 - 526 PILE DRIVING CONTROL
 - 527 ELECTRICAL EMBEDDED WORK

- LIST OF ABBREVIATIONS:**
- CIP CAST IN PLACE
 - PVI POINT OF VERTICAL INTERSECTION
 - SCL SPEED CHANGE LANE
 - SHLD SHOULDER
 - WP WORKING POINT
 - T/F TOP OF FOOTING

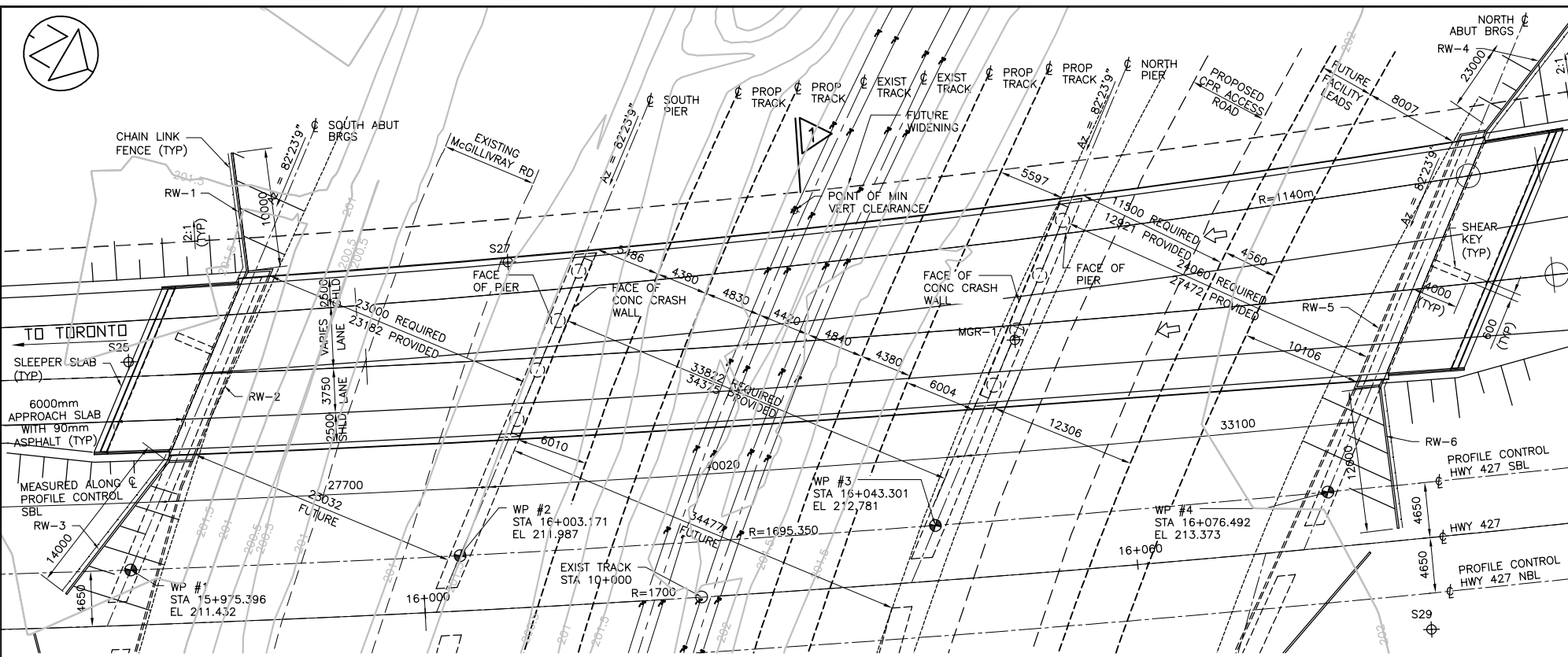
- LEGEND:**
- ⊕ BOREHOLE
 - ⚠ DIMENSIONS ARE PERPENDICULAR TO CL OF TRAFFIC LANE
 - ** DIMENSIONS ARE MEASURED ALONG CL OF ABUTMENTS AND PIERS

SCALE: AS NOTED

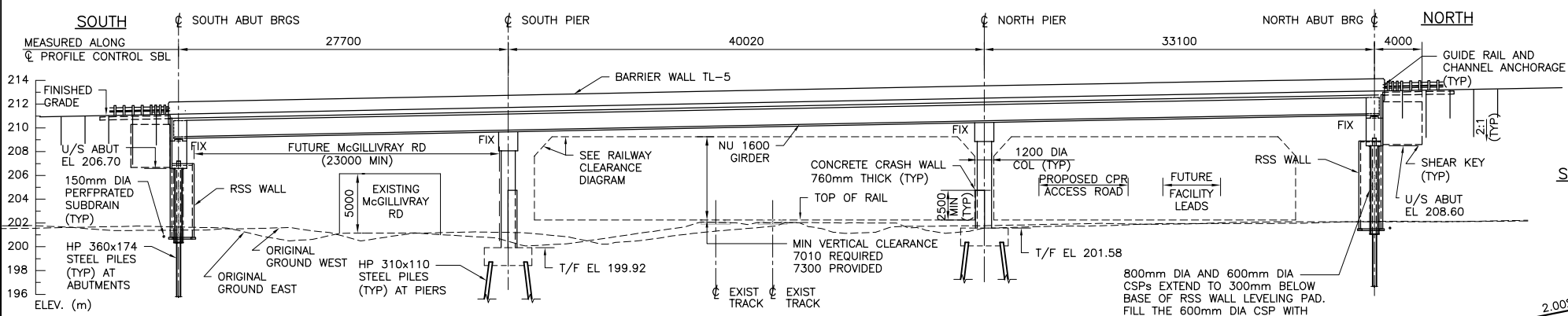
DESIGNED	NIMA MAHMOUDI
DRAWN	ELENA TSENTER
CHECKED	SUBOOHI GBAD
APPROVED LEAD ENG.	TATIANA OJALA
APPROVED PROJ. MANAGER	



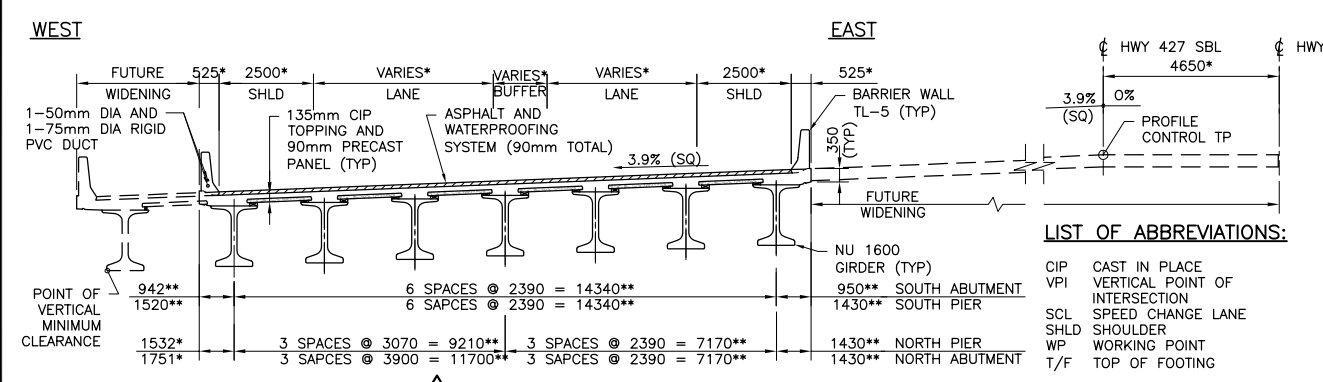
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PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	5	STR	B17A	DWG	500	B



PLAN
1:250



ELEVATION
1:250

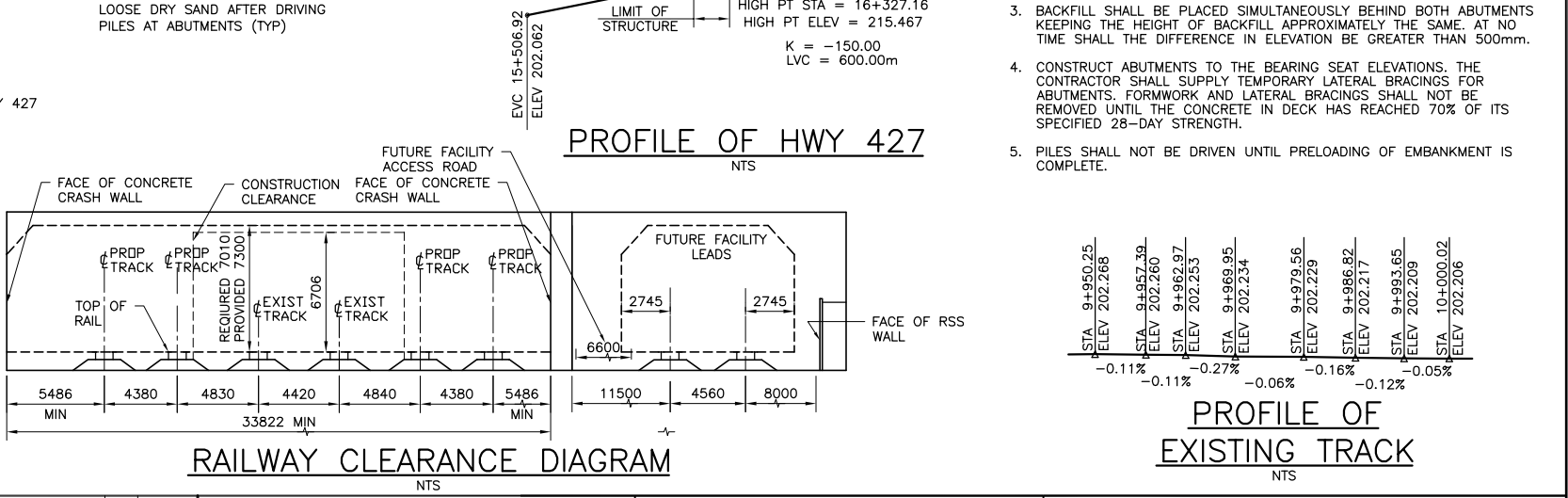


- LIST OF ABBREVIATIONS:**
- CIP CAST IN PLACE
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LEGEND:

- ⊕ BOREHOLE

* DIMENSIONS ARE PERPENDICULAR TO C OF TRAFFIC LANE
 ** DIMENSIONS ARE MEASURED ALONG C OF ABUTMENTS AND PIERS



PROFILE OF HWY 427
NTS

RAILWAY CLEARANCE DIAGRAM
NTS

PROFILE OF EXISTING TRACK
NTS

- APPLICABLE STANDARD DRAWINGS:**
- OPSD 3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
 - OPSD 3101.150 WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENTS
 - OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
 - OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
 - OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
 - OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT
- GENERAL NOTES:**
1. DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
 - CP RAIL STANDARDS, GUIDELINES AND POLICY
 2. LIVE LOAD: CL-625-ONT.
 3. CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
 4. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100 ± 25
DECK	
TOP	70 ± 20
BOTTOM	40 ± 10
REMAINDER (UNLESS OTHERWISE NOTED)	70 ± 20
 5. REINFORCING STEEL
 - REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
 - BAR MARKS WITH PREFIX 'S' DEONTE STAINLESS STEEL BARS.
 - STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.
 - UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.
 - BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
 6. GLASS FIBRE REINFORCED POLYMER (GFRP)
 - GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE I, GRADE II OR GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.
 - THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
 - BAR MARKS WITH THE PREFIX GI DENOTE GRADE I GFRP BARS, BAR MARKS WITH THE PREFIX GII DENOTE GRADE II GFRP BARS AND BAR MARKS WITH THE PREFIX GIII DENOTE GRADE III GFRP BARS.
 7. ROADWAY CLASSIFICATION: RFD 120.
 8. ALL DIMENSIONS ARE IN MILLIMETERS ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

LIST OF DRAWINGS:

- 600 GENERAL ARRANGEMENT
- 601 BOREHOLE LOCATION AND SOIL STRATA I
- 602 BOREHOLE LOCATION AND SOIL STRATA II
- 603 FOUNDATION DETAIL AND PILE LAYOUT I
- 604 FOUNDATION DETAIL AND PILE LAYOUT II
- 605 SOUTH ABUTMENT
- 606 NORTH ABUTMENT
- 607 SOUTH PIER
- 608 NORTH PIER
- 609 RETAINED SOIL SYSTEM
- 610 PRESTRESSED NU GIRDERS AND BEARINGS I
- 611 PRESTRESSED NU GIRDERS AND BEARINGS II
- 612 PRESTRESSED NU GIRDERS AND BEARINGS III
- 613 PRESTRESSED NU GIRDERS - DETAILS
- 614 DECK DETAILS
- 615 PRECAST PANELS LAYOUT
- 616 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS I
- 617 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS II
- 618 DECK REINFORCEMENT I
- 619 DECK REINFORCEMENT II
- 620 BARRIER WALL WITHOUT RAILING, TL-5 (GFRP REBAR WITH ANCHOR HEAD)
- 621 600mm APPROACH SLAB
- 622 EXPANSION JOINT AND SLEEPER SLAB (10mm<MOVEMENT<40mm)
- 623 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB
- 624 STANDARD AND MISCELLANEOUS DETAILS
- 625 PILE DRIVING CONTROL
- 626 ELECTRICAL EMBEDDED WORK

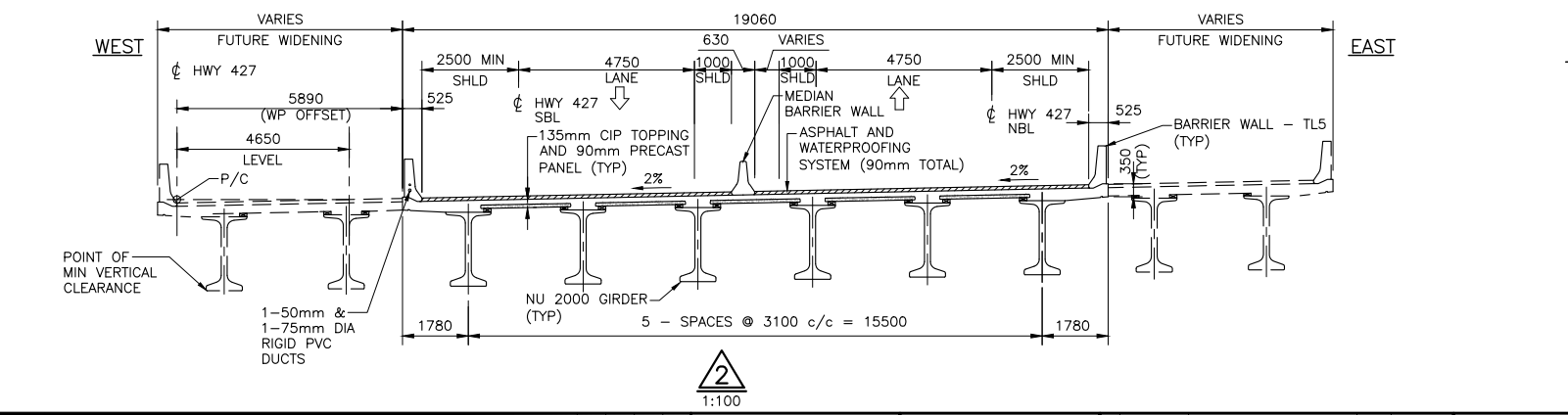
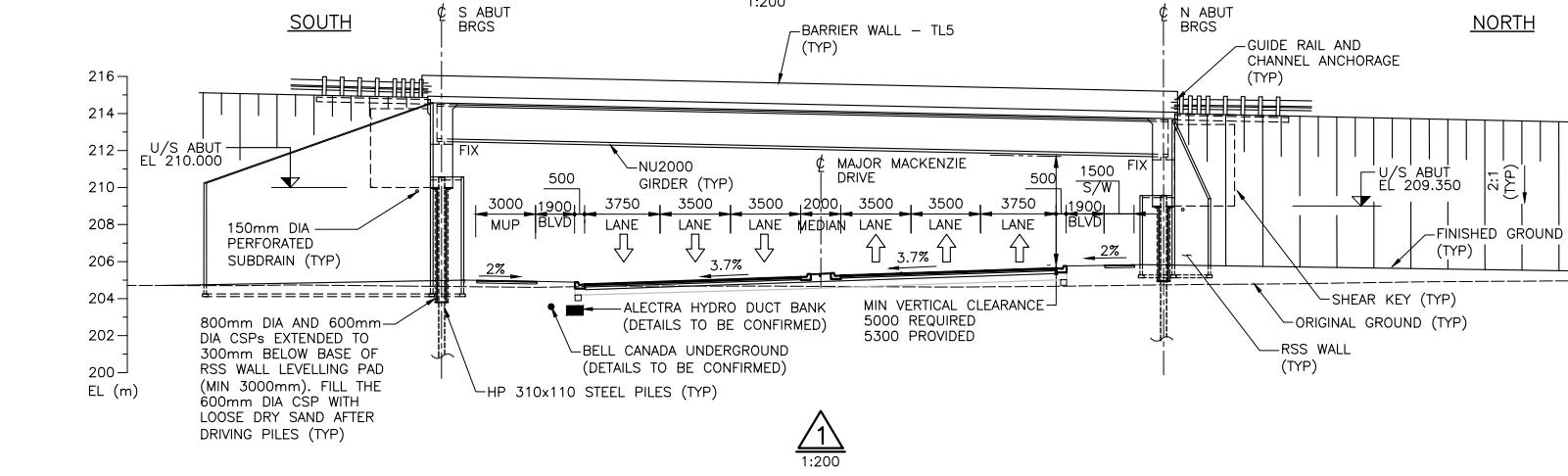
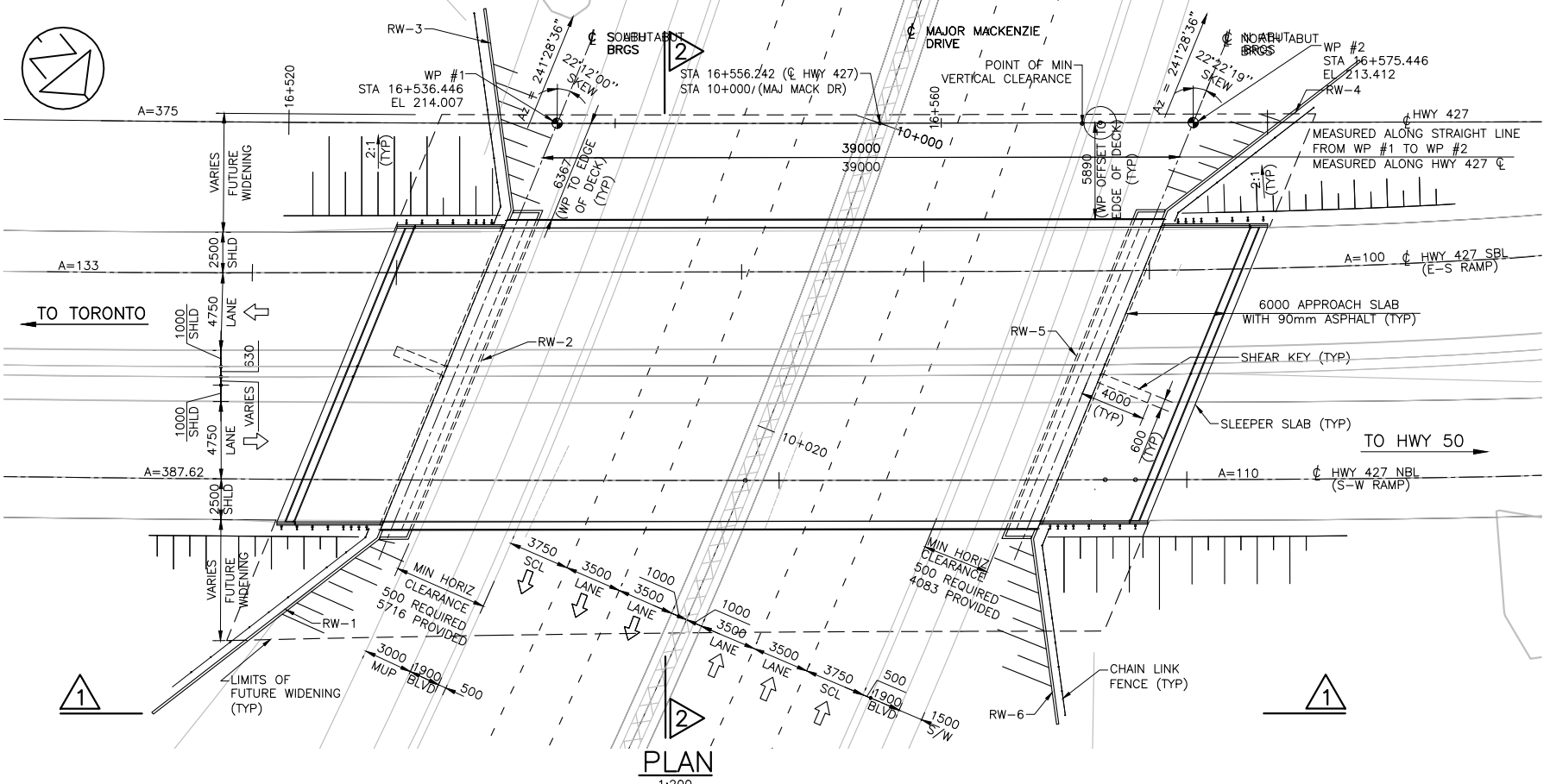
DATE	REVISIONS	BY	CHK	LEAD	PROJ. MAN.
B 18/05/25	90% SUBMISSION TO CA				
A 18/04/27	90% SUBMISSION TO CA				

SCALE :
AS NOTED

DESIGNED	QUAN JIANG
DRAWN	SOPHA MILLS
CHECKED	NIMA MAHMOUDI
APPROVED LEAD ENG.	TATIANA OJALA
APPROVED PROJ. MANAGER	
NAME (PRINT)	INT. DATE



TITLE						
HWY 427 EXPANSION HWY 427 SBL AT CPR/McGILLIVRAY ROAD OVERHEAD SITE 37x-2434/B2 GENERAL ARRANGEMENT						
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER
H427-D	N	5	STR	B17B	DWG	600
REVISION NUMBER						
B						



APPLICABLE STANDARD DRAWINGS:

- OPSD 3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
- OPSD 3101.150 WALLS - ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENTS
- OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
- OPSD 3419.100 BARRIERS AND RAILINGS - STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- OPSD 3941.200 FIGURES IN CONCRETE - SITE NUMBER AND DATE LAYOUT

LEGEND:

- PRECAST CONCRETE PANEL
- NEW ASPHALT AND WATERPROOFING

LIST OF DRAWINGS:

- 700 GENERAL ARRANGEMENT
- 701 BOREHOLE LOCATIONS AND SOIL STRATA I
- 702 BOREHOLE LOCATIONS AND SOIL STRATA II
- 703 FOUNDATION DETAIL AND PILES LAYOUT
- 704 ABUTMENTS
- 705 RETAINED SOIL SYSTEM
- 706 PRESTRESSED NU GIRDERS AND BEARINGS (NU 2000)
- 707 PRESTRESSED GIRDERS - DETAILS
- 708 DECK LAYOUT & SCREED ELEVATIONS
- 709 PRECAST DECK PANELS LAYOUT
- 710 PRECAST DECK PANELS FOR CONCRETE GIRDER - DETAILS I
- 711 PRECAST DECK PANELS FOR CONCRETE GIRDER - DETAILS II
- 712 DECK REINFORCEMENT
- 713 EXTERIOR BARRIER WALL WITHOUT RAILING, TL-5(GFRP REBAR WITH ANCHOR HEAD)
- 714 REINFORCED CONCRETE MEDIAN BARRIER WALL ON STRUCTURES - TYP II
- 715 6000mm APPROACH SLABS
- 716 EXPANSION JOINT AND SLEEPER SLAB (10mm<MOVEMENT<=40mm)
- 717 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB (10mm<MOVEMENT<=40mm)
- 718 STANDARD AND MISCELLANEOUS DETAILS
- 719 PILE DRIVING CONTROL
- 720 ELECTRICAL EMBEDDED WORK

GENERAL NOTES:

1. DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
2. LIVE LOAD: CL-625-ONT.
3. CLASS OF CONCRETE
 - PRECAST GIRDERS 60 MPa (HPC)
 - PRECAST DECK PANELS 40 MPa
 - REMAINDER 30 MPa
4. CLEAR COVER TO REINFORCING STEEL
 - FOOTINGS 100±25
 - DECK TOP 70±20
 - BOTTOM 40±10
 - REMAINDER UNLESS OTHERWISE NOTED 70±20
5. REINFORCING STEEL
 - REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
 - BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
 - STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.
 - UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.
 - BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
6. GLASS FIBRE REINFORCED POLYMER (GFRP)
 - GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.
 - THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
 - BAR MARKS WITH THE PREFIX GIII DENOTE GRADE III GFRP BARS.
7. ROADWAY CLASSIFICATION: RFD 120.
8. ALL DIMENSIONS ARE IN MILLIMETERS ALL ELATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.
9. ALL TRAFFIC ARRANGEMENT DIMENSIONS MEASURED PERPENDICULAR TO RELATED TRAFFIC CONTROL LINES, UNO.

RETAINED SOIL SYSTEM:

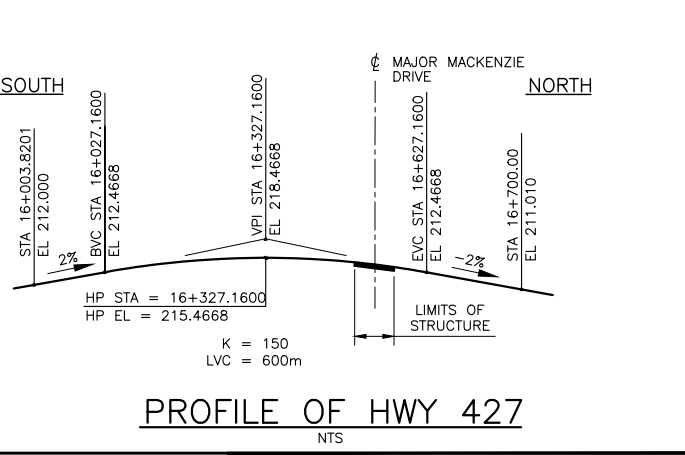
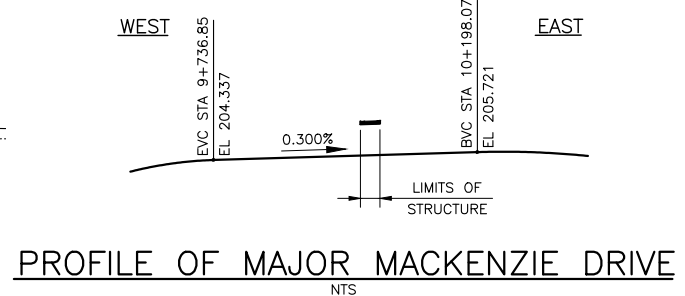
- RETAINED SOIL SYSTEM WALLS SHALL HAVE THE FOLLOWING ATTRIBUTES:
- APPLICATION: FALSE ABUTMENT
- PERFORMANCE: HIGH
- APPEARANCE: HIGH

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH.
3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELATION BE GREATER THAN 500mm.
4. CONSTRUCT ABUTMENTS TO THE BEARING SEAT ELATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACINGS FOR ABUTMENTS. FORMWORK AND LATERAL BRACINGS SHALL NOT BE REMOVED UNTIL THE CONCRETE IN DECK HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
5. ALL EXPOSED EDGES TO RECEIVE A 20x20 CHAMFER.
6. ALL GIRDERS SHALL BE BRACED INDIVIDUALLY BY ATTACHING EACH END TO THE RESPECTIVE SUB-STRUCTURE ELEMENT IMMEDIATELY UPON ERECTION.
7. PILES SHALL NOT BE DRIVEN UNTIL PRELOADING OF EMBANKMENT IS COMPLETE.
8. OVERSIZE MATERIALS (E.G. GREATER THAN 75mm NOMINAL DIAMETER) SHOULD NOT BE USED FOR ANY NEW FILL WHICH THE PILES WILL BE DRIVEN THROUGH.

LIST OF ABBREVIATIONS:

- CIP CAST IN PLACE
- HORIZ HORIZONTAL
- P/C PROFILE CONTROL
- WP WORKING POINT (STA ON CL OF HWY 427)
- MUP MULTI-USE PATH



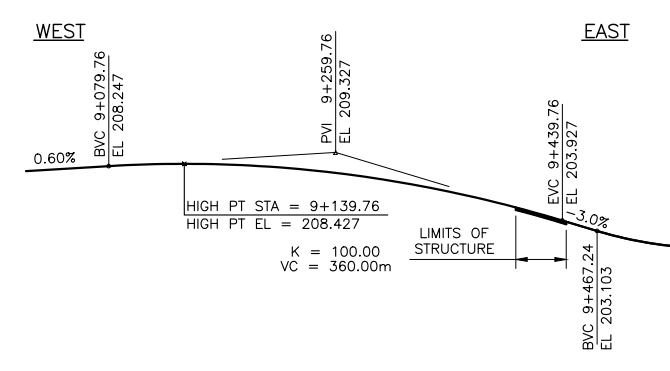
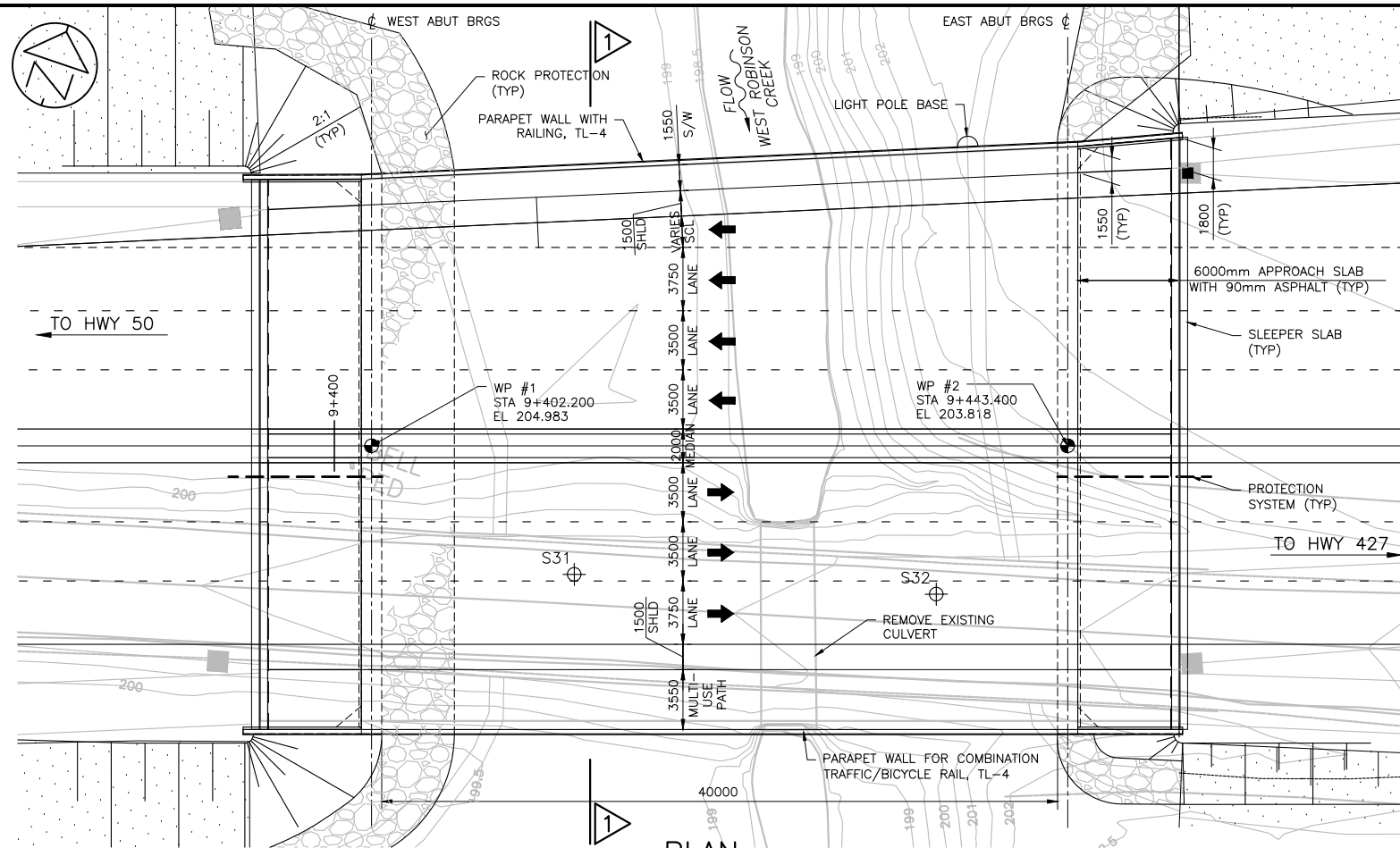
DATE	REVISIONS	BY	CHK	LEAD DISC.	PROJ. MAN.
B 18/05/25	90% SUBMISSION TO CA				
A 18/04/27	90% SUBMISSION TO CA				

SCALE :
AS NOTED

DESIGNED	SHELLEY HUANG	
DRAWN	TOM ZHAO	
CHECKED	QUAN JIANG	
APPROVED LEAD ENG.	TATIYANA GJALA	
APPROVED PROJ. MANAGER		
NAME (PRINT)	INIT.	DATE



TITLE							
HWY 427 EXPANSION HWY 427 NBL AND SBL MAJOR MACKENZIE DRIVE OVERPASS SITE 37x-2425B/0 GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	5	STR	B18	DWG	700	B



- GENERAL NOTES:**
- DESIGN STANDARDS AND CODES:
 - SCHEDULE 15-1 AND SCHEDULE 15-2: PROJECT AGREEMENT
 - DESIGN CODE: CAN/CSA-S6-14
 - MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL MANUAL
 - ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS)
 - LIVE LOAD: CL-625-ONT.
 - CLASS OF CONCRETE

PRECAST GIRDERS	60 MPa (HPC)
PRECAST DECK PANELS	40 MPa
REMAINDER	30 MPa
 - CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100±25
DECK	
TOP	70±20
BOTTOM	40±10
REMAINDER UNLESS OTHERWISE NOTED	70±20
 - REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DEONTE STAINLESS STEEL BARS.

STAINLESS REINFORCING STEEL SHALL BE TYPE 316 LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 UNLESS INDICATED OTHERWISE.
 - GLASS FIBRE REINFORCED POLYMER (GFRP)

GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCING BARS SHALL BE GRADE I, GRADE II OR GRADE III AS SPECIFIED IN THE CONTRACT DOCUMENTS.

THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH THE PREFIX GI DENOTE GRADE I GFRP BARS, BAR MARKS WITH THE PREFIX GII DENOTE GRADE II GFRP BARS AND BAR MARKS WITH THE PREFIX GIII DENOTE GRADE III GFRP BARS.
 - ROADWAY CLASSIFICATION: UAD 60.
 - PROTECTION SYSTEM SHALL CONFORM TO PERFORMANCE LEVEL 2.
 - ALL DIMENSIONS ARE IN MILLIMETERS ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

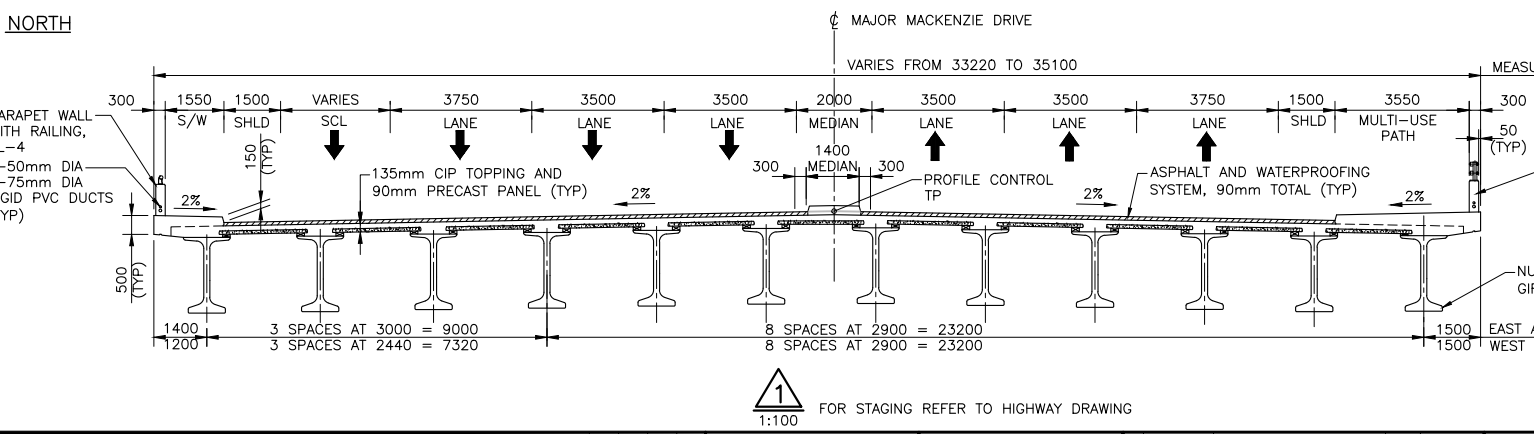
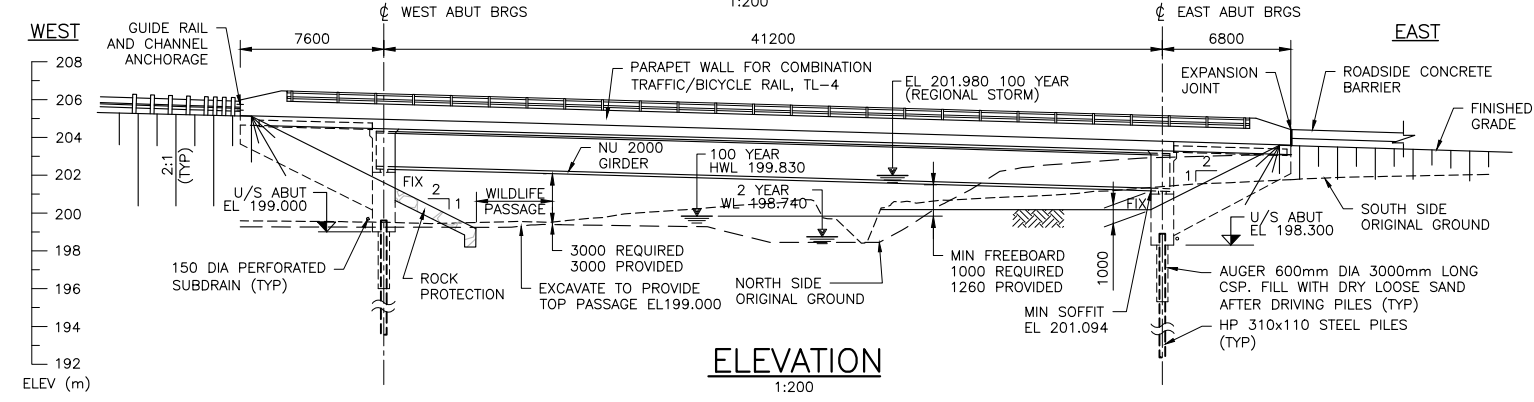
- LIST OF DRAWINGS:**
- 800 GENERAL ARRANGEMENT
 - 801 BOREHOLE LOCATIONS AND SOIL STRATA
 - 802 CONSTRUCTION STAGING
 - 803 FOUNDATION LAYOUT AND FOOTING REINFORCEMENT
 - 804 ABUTMENTS
 - 805 WINGWALL DETAILS
 - 806 PRESTRESSED NU GIRDERS AND BEARINGS (NU 2000)
 - 807 PRESTRESSED NU GIRDERS - DETAILS
 - 808 DECK LAYOUT AND SCRED ELEVATION
 - 809 PRECAST DECK PANEL LAYOUT
 - 810 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS I
 - 811 PRECAST DECK PANELS FOR CONCRETE GIRDERS - DETAILS II
 - 812 DECK REINFORCEMENT
 - 813 PARAPET WALL WITH RAILING ON SIDEWALK, TL-4 (GFRP GRADE III REBAR)
 - 814 RAILING FOR PARAPET WALL
 - 815 PARAPET WALL FOR COMBINATION TRAFFIC/BICYCLE RAIL, TL-4 (GFRP REBAR WITH ANCHOR HEAD)
 - 816 RAILING ON PARAPET FOR COMBINATION TRAFFIC/BICYCLE RAIL, TL-4
 - 817 6000mm APPROACH SLAB
 - 818 EXPANSION JOINT AND SLEEPER SLAB (10mm<MOVEMENT<=40mm)
 - 819 STRIP SEAL EXPANSION JOINT FOR SLEEPER SLAB (10mm<MOVEMENT<=40mm)
 - 820 PILE DRIVING CONTROL
 - 821 STANDARD DETAILS
 - 822 ELECTRICAL EMBEDDED WORK

- APPLICABLE STANDARD DRAWINGS:**
- OPSD 0911.381 GUIDE RAIL SYSTEM, CONCRETE BARRIER PERMANENT TRANSITION INSTALLATION ROADSIDE CONCRETE BARRIER TO STRUCTURE
 - OPSD 0912.430 GUIDE RAIL SYSTEM, STEEL BEAM STRUCTURE CONNECTION
 - OPSD 3101.150 WALLS, ABUTMENT, BACKFILL, MINIMUM GRANULAR REQUIREMENT
 - OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
 - OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS
 - OPSD 3419.100 BARRIERS AND RAILINGS, STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
 - OPSD 3941.200 FIGURES IN CONCRETE, SITE NUMBER AND DATE, LAYOUT

- CONSTRUCTION NOTES:**
- THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
 - BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH.
 - BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
 - CONSTRUCT ABUTMENTS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACINGS FOR ABUTMENTS. FORMWORK AND LATERAL BRACINGS SHALL NOT BE REMOVED UNTIL THE CONCRETE IN DECK HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
 - ABUTMENT PILES SHALL NOT BE DRIVEN UNTIL PRELOADING OF APPROACH EMBANKMENT IS COMPLETE.

- LIST OF ABBREVIATIONS:**
- CIP CAST IN PLACE
 - FIX FIXED
 - PT POINT
 - PVI POINT OF VERTICAL INTERSECTION
 - SCL SPEED CHANGE LANE
 - SHLD SHOULDER
 - WP WORKING POINT

- LEGEND:**
- ⊕ BOREHOLE



SOUTH

DATE	REVISIONS	BY	CHK	LEAD DISC.	PROJ. MAN.
B 18/05/25	90% SUBMISSION TO CA				
A 18/04/27	90% SUBMISSION TO CA				

SCALE :
AS NOTED

DESIGNED	NASIM REZAI	
DRAWN	FEI PANG	
CHECKED	QUAN JIANG	
APPROVED LEAD ENG.	TATIANA QJALA	
APPROVED PROJ. MANAGER		
NAME (PRINT)	INIT.	DATE



TITLE							
HWY 427 EXPANSION MAJOR MACKENZIE DRIVE OVER WEST ROBINSON CREEK SITE 37x-2436/B0 GENERAL ARRANGEMENT							
PROJECT ID.	STAGE IDENTIFIER	DESIGN PACKAGE NUMBER	DISCIPLINE	STRUCTURE NUMBER	DOCUMENT TYPE	DRAWING NUMBER	REVISION NUMBER
H427-D	N	5A	STR	B19	DWG	800	B