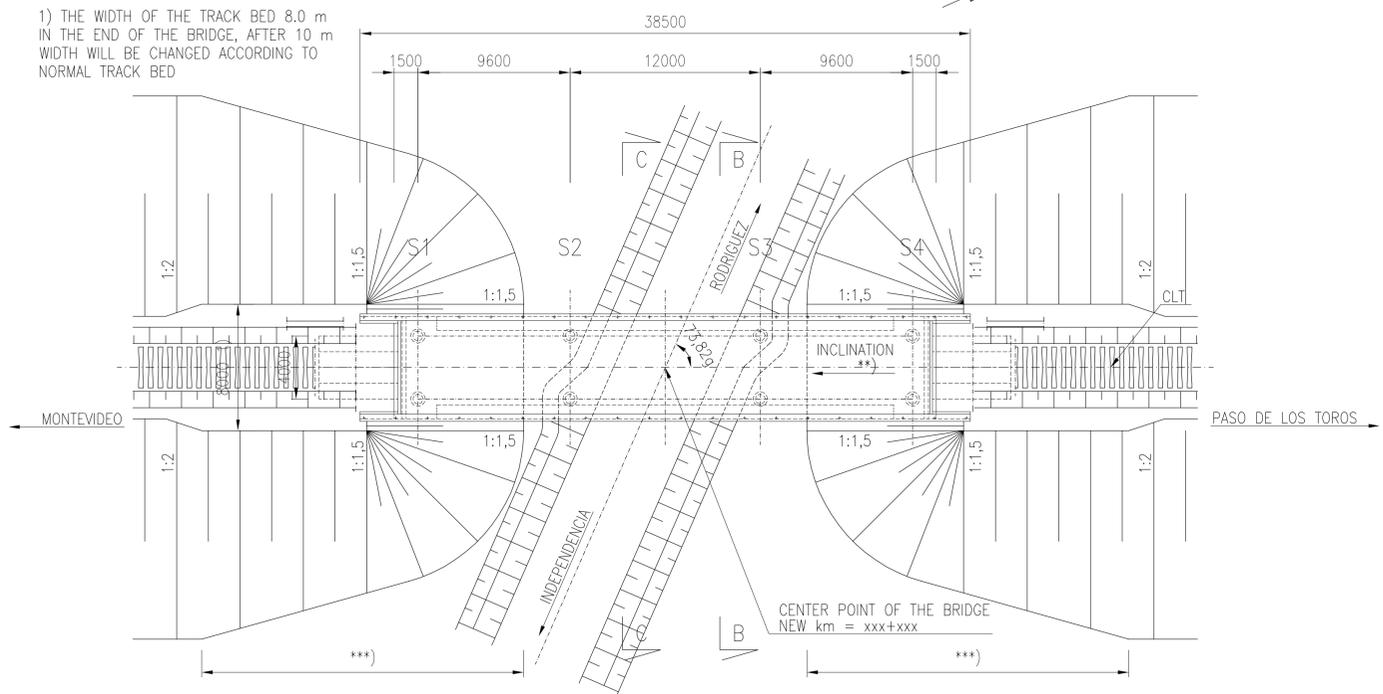


UNDERPASS BRIDGE 1:200

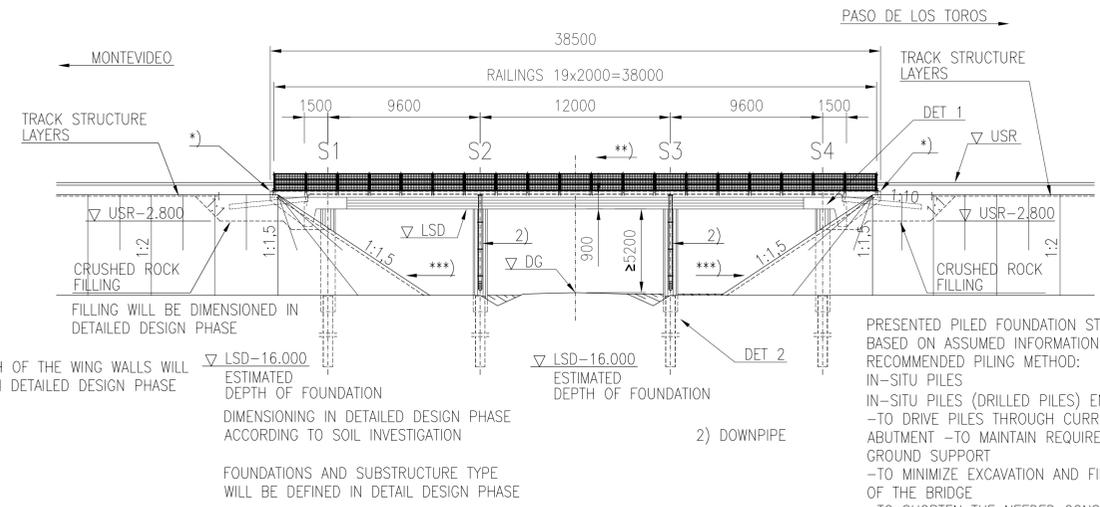
INDEPENDENCIA NORTH



**) BRIDGE WILL BE BUILT MIN. 1 % INCLINATION ACCORDING TO VERTICAL GEOMETRY OF TRACK

**) INCLINATION IN EMBANKMENTS 1:1,5 -> 1:2 AND IN FRONT SLOPE 1:1,5 CRUSHED ROCK MATERIAL

A - A 1:200



*) THE LENGTH OF THE WING WALLS WILL BE VERIFIED IN DETAILED DESIGN PHASE

ESTIMATED DEPTH OF FOUNDATION DIMENSIONING IN DETAILED DESIGN PHASE ACCORDING TO SOIL INVESTIGATION

FOUNDATIONS AND SUBSTRUCTURE TYPE WILL BE DEFINED IN DETAIL DESIGN PHASE

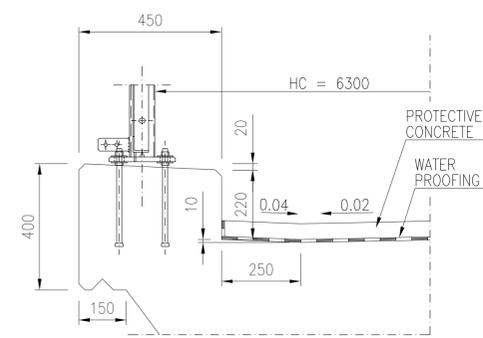
2) DOWNPIPE

PRESENTED PILED FOUNDATION STRUCTURE IS BASED ON ASSUMED INFORMATION OF SOIL. RECOMMENDED PILING METHOD: IN-SITU PILES

IN-SITU PILES (DRILLED PILES) ENABLE

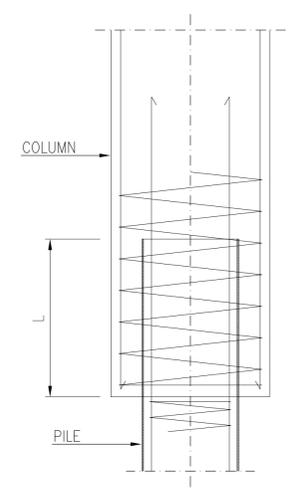
- TO DRIVE PILES THROUGH CURRENT STONE ABUTMENT - TO MAINTAIN REQUIRED PART OF GROUND SUPPORT
- TO MINIMIZE EXCAVATION AND FILLING IN THE END OF THE BRIDGE
- TO SHORTEN THE NEEDED CONSTRUCTION TIME

EDGE BEAM 1:10



DET 2 1:20

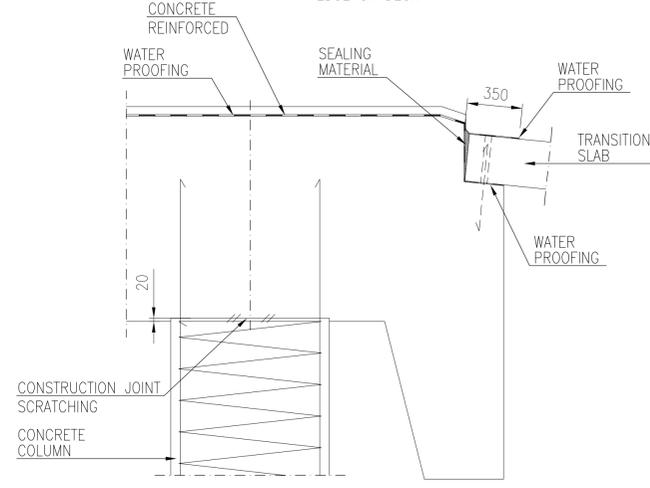
JONTS PILE - COLUMN



POSSIBLE REINFORCING AND L (LENGTH OF SPLICE) WILL BE DIMENSIONED IN DETAILED DESIGN PHASE

DET 1 1:20

PILE - DECK CONNECTION EDGE OF DECK



REINFORCING IN DECK AND PILES WILL BE DIMENSIONED IN DETAILED DESIGN PHASE

ESTIMATED AMOUNT OF CONCRETE

PILES: 23 m³

COLUMNS: 33 m³

SUPERSTRUCTURE: 204 m³

ESTIMATED REINFORCING STEEL

PILES: 2400 kg

COLUMNS: 260 kg/m³ (CONCRETE)

SUPERSTRUCTURE: 180 kg/m³ (CONCRETE)

TRANSITION SLABS: 325 kg/m³ (CONCRETE)

PROTECTIVE CONCRETE: 3 kg/m²

CONCRETE: C35/45
Cmin=40 mm

REINFORCING STEEL: B500B
REINFORCING MESH: B500K

PILES / FOUNDATION: DRILLED PILES D610x14,2 S355J2H

TRANSITION SLABS: PREFABRICATED TRANSITION SLABS
2 x 4 x 1.0 m x 5.0 m
OR CAST IN SITU 2 x 4.0 m x 5.0 m
CONCRETE C35/45

CONSTRUCTIONAL STEEL: S355 J2, HOT-DIP ZINC COATED

RAILING / FENCE: h = 1.1 m
S355J2H
HORIZONTAL LINE LOAD 1.0 KN/m
VERTICAL POINT LOAD 1.0 KN

SURFACE STRUCTURE: WATER PROOFING MATERIAL 10 mm
PROTECTIVE CONCRETE 50 mm
BALLAST 550 mm

FILLING: REQUIREMENTS ACCORDING TO TRACK INTERMEDIATE LAYER

CLT = CENTER LINE of the TRACK
HC = HORIZONTAL CLEARANCE
LSD = LOWER SURFACE of the DECK
USR = UPPER SURFACE of the RAIL

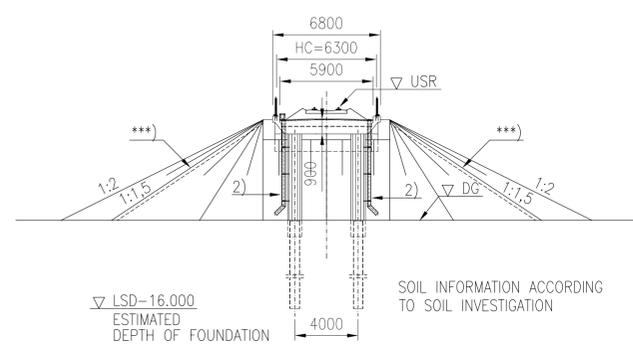


BRIDGE TYPE	REINFORCED CONCRETE BRIDGE
	CONTINUOUS CANTILEVER PLATE
SPANS	1.50m + 9.60m + 12.00m + 9.60m + 1.50m
HORIZONTAL CLEAR SPAN	—
VERTICAL CLEARANCE	—
HORIZONTAL CLEARANCE	6.30 m

VERSION
15.12.2017

Revision	Explanation	Date	Designer	Date	Acceptor
Customer	Project: Railway Project				
Supplier	Design phase: Pre-engineering, Phase 2				
Drawer	Content: Underpass bridge Independencia North Preliminary general drawing Km+m 068+265				
Designer	12.12.2017	Ilkka Tiito	Loading: LM71-25		
Supervisor	12.12.2017	Reima Niklander	Coordinate and elevation reference system: WGS 84 UTM 21		
Accept.	-	-	Railway line		
Cust. acc.	-	-	Archive Type Number Rev. Sheet		
			UP xxxx - 1		

B - B 1:200



SOIL INFORMATION ACCORDING TO SOIL INVESTIGATION

C - C 1:100

