



AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT
UNITED NATION OFFICE FOR PROJECT SERVICES

ENGINEERING DRAWINGS

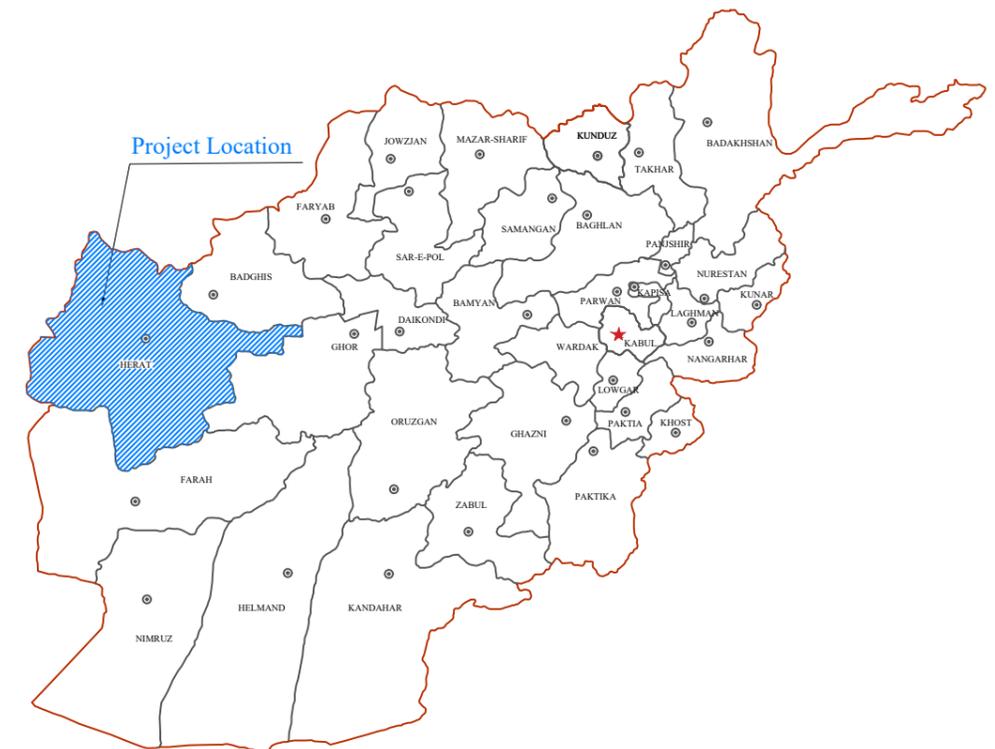
PROJECT NAME: CONSTRUCTION OF SULTAN MAHMOOD GHAZNAWI PLUM CONCRETE SURFACE STREETS WITH A TOTAL LENGTH OF 900M IN CDC #6 AND #7 OF DISTRICT #9 OF HERAT CITY

CONTRACT ID: HRT/DIS#9/SP03

LENGTH: STREET #1 FROM (0+000 To 0+560)
STREET #2 FROM (0+000 To 0+340)

DISTRICT: 9

CITY: HERAT



SUBMISSION DATE: NOV 2024

NOTES:-

1. THIS NOTE IS A GENERAL TYPICAL INITIAL BRIEF OF THE CONSTRUCTION REQUIREMENT FOR THE ALMOST ALL TYPE OF THE CRL PROJECTS, IN CASE SOME PARTS OF THIS GENERAL NOTE ARE NOT RELEVANT TO THE SUB PROJECTS PLEASE IGNORE IT, THE DESIGN TEAM RECOMMEND TO KEEP THIS TECHNICAL INFORMATION FOR THE SAKE OF INFORMATION OF SITE TEAMS.
2. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

1. GENERAL:-

- 1.1- THESE NOTES SHOULD BE READ IN CONJUNCTION WITH RELEVANT CONTRACT CONDITIONS, TECHNICAL SPECIFICATIONS AND BILL OF QUANTITIES FOR THE PROJECT. WHEREVER MORE THAN ONE SET OF STANDARDS IS USED TO SPECIFY WORKMANSHIP, LATEST RELEVANT STANDARDS OF AASHTO, ASTM SHALL BE APPLICABLE AS INSTRUCTED BY THE ENGINEER
- 1.2- ALL MATERIALS USED AND WORKMANSHIP INVOLVED IN THE EXECUTION OF ALL WORK COVERED UNDER THIS CONTRACT SHALL BE IN STRICT CONFORMITY WITH DRAWINGS, SPECIFICATIONS & CONTRACT CONDITION, UNLESS AGREED IN WRITING AND APPROVED BY THE ENGINEER .
- 1.3 ALL DIMENSIONS INDICATED ON THE DRAWING ARE IN MILLIMETERS. ALL ELEVATIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- 1.4- WHERE REFERENCE STANDARDS FOR TESTING MATERIALS ARE NOT EXPLICITLY- STATED ON THE DRAWINGS, SPECIFICATION AND CONTRACT DOCUMENTS. THE LATEST VERSION OF ASTM IS APPLICABLE.
- 1.5 WHERE THE CONSTRUCTION SPECIFICATION HAS NOT COVER SOME ITEM, THE CONSTRUCTION SPECIFICATION OF (UFGS) IS APPLICABLE.
- 1.6- CONTRACTOR TO TAKE CARE OF DE-MINING AND SECURITY OF THE CONSTRUCTION SITE BEFORE COMMENCING THE WORK.
- 1.7- IN ALL DRAINS WITH A DEPTH OF 30cm, THE DRAIN PIPES FROM THE RESIDENT HOUSES SHALL BE INSTALLED AT LEAST BELOW THE PLUM CONCRETE LAYER.
- 1.8- IF THERE IS ANY DISCREPANCY BETWEEN THE SITE CONDITIONS AND DESIGN DRAWINGS OF THE STRUCTURES CONSIDERING THE STRUCTURE'S HEIGHT, LENGTH, AND/OR LOCATION, ADJUSTMENTS ARE ALLOWED IN ORDER TO SUIT THE SITE CONDITIONS, HOWEVER PRIOR TO BRINGING ANY CHANGES AND/OR ADJUSTMENT, THE CONTRACTOR SHALL NOTIFY UNOPS'S ENGINEER IN ADVANCE AND RECEIVE HIS APPROVAL FOR SUCH CHANGES.

2. MATERIALS & WORKMANSHIP:-

- 2.1 ALL MATERIALS AND WORKMANSHIP SHALL MEET RELEVANT AASHTO AND ASTM STANDARDS AS DETAILED IN THE SPECIFICATIONS AND SUBJECT TO THE ENGINEER'S APPROVAL.

**3. MINIMUM CONCRETE COVER TO REINFORCEMENT:-
(IF APPLICABLE IN THE PROJECT)**

- * CONCRETE ELEMENTS UNDER SOIL75mm
- * CONCRETE ELEMENT ABOVE GROUND (FOR ALL SIDES)50mm

4. CONCRETE:-

(IF APPLICABLE IN THE PROJECT)

- 4.1 PCC IN THE FOUNDATION OF RETAINING WALL, PROTECTION WALL, CURB STONE, SIDE DRAIN, CANAL, WING WALL AND OTHER SUB STRUCTURES SHOULD BE 15MPa.
- 4.2 PCC ON THE TOP OF RETAINING WALL, PROTECTION WALL, SIDE DRAIN, CANAL, WING WALL AND OTHER SUB STRUCTURES SHOULD BE 25MPa.
- 4.3 CONCRETE STRENGTH FOR RCC SHALL MEET 25MPa STRENGTH AT 28DAYS, RESULT FROM CYLINDRICAL SAMPLE.
- 4.4 CONCRETE STRENGTH FOR PLUM CONCRETE SHALL MEET 25MPa STRENGTH AT 28DAYS, RESULT FROM CYLINDER SAMPLE.
- 4.5 THE CONTRACTOR TO SUBMIT CONCRETE MIXED DESIGN PRIOR TO COMMENCEMENT OF WORK.
- 4.6 THE FRESH MIXED CONCRETE SHALL BE POURED AS QUICKLY AS POSSIBLE BUT NOT LATER THAN 35 MINUTES STARTING FROM, WHILE THE MIXING PROCESS OF WATER, CEMENT COURSE AND FINE AGGREGATE WAS COMPLETED
- 4.7 WATER FOR CONCRETE SHALL BE CLEAN AND FREE FROM SILT, ORGANIC MATTER, ALKALI, SALT AND OTHER OBJECTIONABLE IMPURITIES.
- 4.8 CURING OF CONCRETE SHALL BE CONTINUED FOR A REQUIRED NUMBER OF DAYS INSTRUCTED BY THE UNOPS ENGINEER, POURED CONCRETE SHALL BE KEPT COVER WITH BURLAP, ETC AS REQUIRED.

5. CONCRETE FINISH:-

(IF APPLICABLE IN THE PROJECT)

ALL EXPOSED CONCRETE SURFACES ABOVE GROUND SHALL HAVE "RUBBED FINISH". AND ALL BURIED PART SHALL HAVE "ORDINARY FINISH" ALL SHARP EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED AS PER DRAWINGS. ALL FORM WORK SHALL BE OF SMOOTH STEEL PLATES OR PLYWOOD PROPERLY STRENGTHENED & BRACED AGAINST WAVES WOBBLING OR BUCKLING.

6. WORKMANSHIP AND QUALITY CONTROL:-

THE ONUS IS ON THE CONTRACTOR TO PRODUCE WORK WHICH CONFORMS IN QUALITY AND ACCURACY OF DETAIL TO THE REQUIREMENTS OF THE SPECIFICATIONS AND/OR DRAWINGS, AND THE CONTRACTOR MUST, AT HIS OWN EXPENSE, INSTITUTE A QUALITY CONTROL SYSTEM AND PROVIDE EXPERIENCED ENGINEERS, FOREMEN, SURVEYORS, MATERIALS TECHNICIANS, OTHER TECHNICIANS AND OTHER TECHNICAL STAFF, TOGETHER WITH ALL TRANSPORT, INSTRUMENTS AND EQUIPMENT, TO ENSURE ADEQUATE SUPERVISION AND POSITIVE CONTROL OF THE WORKS AT ALL TIMES. THE COST OF ALL SUPERVISION AND PROCESS CONTROL, INCLUDING TESTING, SO CARRIED OUT BY THE CONTRACTOR, SHALL BE DEEMED TO BE INCLUDED IN THE RATES TENDERED FOR THE RELATED ITEMS OF WORK EXCEPT THAT THE COST OF CERTAIN TESTS AND THE PROVISION OF CERTAIN ITEMS OF TESTING AND SAMPLING EQUIPMENT WILL BE PAID FOR SEPARATELY AS PROVIDED FOR IN THOSE SECTIONS OF THE SPECIFICATIONS WHERE THIS APPLIES.

7. ENVIRONMENT AND SOCIAL MANAGEMENT:-

THE CONTRACTOR MUST ASSESS THE NEED FOR AND SUPPLY ANY NECESSARY PPE FREE OF CHARGE TO ALL UNSKILLED LABOURERS AND OTHER PERSONS THAT IT EMPLOYS TO WORK ON THE PROJECT OR VISIT SITE. ALL PROVIDED PPE MUST BE OF A GOOD QUALITY AND BE IN A GOOD USABLE CONDITION. THE CONTRACTOR WILL REPLACE ANY LOST OR DAMAGED PPE FREE OF CHARGE AND WILL NOT MAKE ANY CHARGES OR DEDUCTIONS TO PAYABLE WAGES FOR ITS PROVISION OR REPLACEMENT (FOR MORE DETAIL CHECK THE SPEC).

8. EXCAVATION:-

ALL EXCAVATION SHOULD BE CARRIED OUT USING UNSKILLED LABOR AND HAND TOOLS RATHER THAN USING MECHANICAL PLANT AND EQUIPMENT UNLESS OTHERWISE AGREED WITH THE UNOPS ENGINEER ON SITE (FOR MORE DETAIL CHECK THE SPEC).

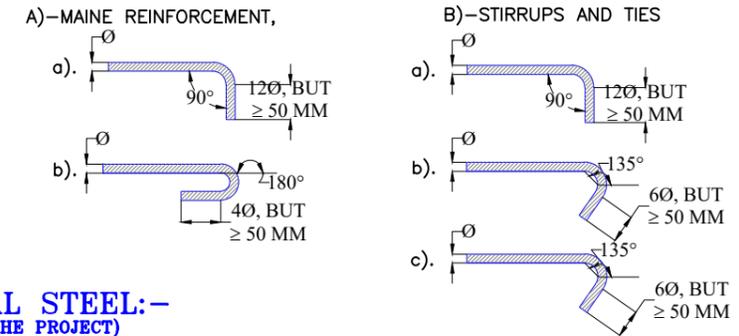
9. COMPACTION:-

MECHANICAL EQUIPMENT SHALL BE USED FOR COMPACTING MATERIALS BY ROLLING, TAMPING AND WATERING (IF NEEDED). FOR OTHER OPERATIONS SUCH AS SPREADING, MIXING AND SHAPING, MANUALLY OPERATED TOOLS AND EQUIPMENT IS PREFERRED ON MECHANICAL EQUIPMENT ALONE OR A COMBINATION OF THE TWO SHALL BE USED. THE CHOICE OF EQUIPMENT AND THE PROCEDURE FOR THEIR USE SHALL BE SUBJECT TO THE APPROVAL OF THE UNOPS ENGINEER UPON HIS BEING SATISFIED ABOUT THEIR EFFECTIVENESS BASED ON TRIAL COMPACTION (FOR MORE DETAIL CHECK THE SPEC).

10. REINFORCING STEEL:-

(IF APPLICABLE IN THE PROJECT)

- 10.1 ALL REINFORCING BARS SHALL BE HIGH-YIELD. DEFORMED BARS WITH MINIMUM YIELD STRENGTH OF 420N/mm² CONFORMING TO THE FOLLOWING STANDARDS OF ASTM A-615
- 10.2 UNLESS NOTED OTHERWISE, LAPS IN REINFORCING BARS SHALL BE STAGGERED.
- 10.3 ALL REINFORCING STEEL SHOULD BE ACCURATELY LOCATED INSIDE THE FORMWORK AND THE MINIMUM SPECIFIED COVER SHALL BE ACHIEVED BEFORE PLACING OF CONCRETE BY MEANS OF 16 GAUGE BLACK ANNEALED WIRE AND ADEQUATELY DESIGN SPACERS AND SUFFICIENT SPACER CHAIRS TO HOLD RE-BARS IN POSITION.
- 10.4. ANCHORAGE OF LINKS SHALL BE AS PER DIAGRAM GIVEN BELOW.
- 10.5- DURING STEEL BARS CUTTING CONTRACTOR WILL TAKE CARE OF THE BAR BENDING SCHEDULES WHICH ARE PROVIDED BY CONSULTANT ALONG WITH THE DRAWING, CONTRACTOR MUST NOT CUT THE STEEL BARS CONSIDER ONLY THE ABOVE TABLE AND FIGURES.



11. STRUCTURAL STEEL:-

(IF APPLICABLE IN THE PROJECT)

ALL STRUCTURAL STEEL INDICATED ON DRAWINGS INCLUDING PLATES, ANGLES ETC. SHALL BE DEEP GALVANIZED AND ROLLED FROM PRIME BILLETS CONFORMING TO ASTM A36/A(AASHTO M-183/M).

12. BACK FILL

THE BACK FILLING MATERIALS IN STRUCTURE SHALL BE CLEAN GRAVEL. THE FILLING MATERIALS SHALL BE WELL GRADED AND THOROUGHLY COMPACTED BUT IN NO CASE HEAVY MACHINERY AND EQUIPMENT SHOULD BE USED FOR COMPACTION, USE PLATE COMPACTOR.

13. UNDER GROUND UTILITIES:-

(IF APPLICABLE IN THE PROJECT)

PRIOR TO COMMENCE THE WORKS INVOLVING THE EXCAVATIONS, OR GROUND CLEARANCE, CHECK SHALL BE MADE BY THE CONTRACTOR FOR BURIED UNDER GROUND UTILITIES TO AVOID ANY DAMAGES FOR THE UNDER GROUND UTILITIES.

14. SHOP DRAWINGS:-

(IF APPLICABLE IN THE PROJECT)

IF ANY SHOP DRAWINGS IS REQUIRED DURING THE PROJECT IMPLEMENTATION, THE CONTRACTOR IS RESPONSIBLE TO DEVELOP IT AND SUBMIT TO THE UNOPS ENGINEER FOR THE APPROVAL. IF FIELD TOPO SURVEY OR SITE ASSESSMENT IS REQUIRED, THE CONTRACTOR IS REQUIRED TO DO WITH ACCURATE SURVEY EQUIPMENT WITHOUT ANY EXTRA CHARGES AND PAYMENTS.

15. ALIGNMENT, ELEVATIONS AND SLOPES:-

(IF APPLICABLE IN THE PROJECT)

THE CONTRACTOR IS RESPONSIBLE TO ADJUST THE PROJECT FEATURES ALIGNMENT, ELEVATION AND SLOPE AS PER SITE NEEDS AND REQUIREMENTS WITH THE APPROVAL OF UNOPS ENGINEER PRIOR TO START THE WORKS.

16. STRUCTURES ADJUSTMENT:-

(IF APPLICABLE IN THE PROJECT)

THE CONTRACTOR IS RESPONSIBLE TO ADJUST THE STRUCTURE LOCATION, ALIGNMENT AND HEIGHT AS PER SITE NEEDS AND REQUIREMENTS WITH THE APPROVAL OF UNOPS ENGINEER.

17. SUBGRADE:-

(IF APPLICABLE IN THE PROJECT)

- 17.1. SUBGRADE PREPARATION SHALL CONFORM TO SECTION 4000 OF MINOR WORKS SPECIFICATION.
- 17.2. UNDER TERTIARY ROADS OR STREETS, THE TOP 150mm OF ALL EMBANKMENTS (THE SUBGRADE) SHALL BE CONSTRUCTED USING SELECT GRANULAR MATERIALS TO PROVIDE A SUBGRADE CBR OF AT LEAST 8 AT 92% AASHTO T-180 METHOD D. IN CASE OF NATURAL SUBGRADE OR EXCAVATION BED, THE EXISTING MATERIAL SHALL HAVE A CBR OF 5% AT 92% AASHTO T-180 METHOD D. IF THE MATERIAL OF NATURAL SUBGRADE CANNOT FULFIL THE REQUIRED CBR, SOME EXTRA GRANULAR MATERIALS SHALL BE MIXED WITH THE EXISTING MATERIAL TO ACHIEVE THE REQUIRED COMPACTION AND MATERIAL REQUIREMENTS WITHOUT EXTRA COST OF THE CONTRACTOR. THE FINISHED LEVEL OF THE FILL SHALL BE WITHIN +25mm AND -50mm OF THE REQUIRED LEVEL.
- 17.3. FOR THE CONSTRUCTION OF NATURAL SUBGRADE, THE SURFACE SHALL BE SCARIFIED TO A MINIMUM OF 150MM AND RECOMPACTED TO 92% OF MDD AS DETERMINED USING AASHTO T-180 METHOD D. THE MOISTURE CONTENT SHALL BE IN RANGE OF OMC ± 4%.
- 17.4. IF DURING SUBGRADE PREPARATION FACED WITH NON-SUITABLE MATERIAL IT SHALL BE REMOVED AND REPLACED WITH SATISFACTORY MATERIAL.
- 17.5. THE SUBGRADE BELOW THE SIDE DRAIN SHALL COMPACT PROPERLY TO SUPPORT THE SIDE DRAIN LOAD AS REQUIRED.

No	DESCRIPTION	DATE	SURVEYED BY	UNOPS SITE TEAM	AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT UNITED NATION OFFICE FOR PROJECT SERVICES 	PROJECT NAME	CONSTRUCTION OF SULTAN MAHMOOD GHAZNAWI PLUM CONCRETE SURFACE STREETS WITH A TOTAL LENGTH OF 900M IN CDC #6 AND #7 OF DISTRICT #9 OF HERAT CITY		
			DESIGNED BY	HAMIDULLAH SAHIL		PROJECT ID	HRT/DIS#9/SP03		
			DRAWN BY	LEMA BARAKZAI		DRAWING TITLE	GENERAL NOTES		
			CHECKED BY	ABDUL WASAY AMIN		DRAWING SCALE	AS SHOWN	PLOT DATE: NOV -2024	02 OF 12
			REVIEWED BY	PEER REVIEWER					
			APPROVED BY	IPMG					

18. SUB BASE
(IF APPLICABLE IN THE PROJECT)

- 18.1 SUBBASE COURSE SHALL CONFORM TO SECTION 7100 OF MINOR WORKS SPECIFICATION.
- 18.2 SUB-BASE COURSE SHALL BE COMPACTED TO A MINIMUM OF 95% LABORATORY MAXIMUM DRY DENSITY WITH OMC TOLERANCE OF ± 4% WHEN TESTED IN ACCORDANCE AASHTO T 180 METHOD D.
- 18.3 THE SUBBASE COURSE MATERIAL UNDER SIDE DRAIN SHALL COMPACT PROPERLY AS REQUIRED.

19. CRUSHED AGGREGATE BASE COURSE
(IF APPLICABLE IN THE PROJECT)

- 19.1 SUBBASE COURSE SHALL CONFORM TO SECTION 7200 OF MINOR WORKS SPECIFICATION.
- 19.2 BASE COURSE SHALL BE COMPACTED TO A MINIMUM OF 97% LABORATORY MAXIMUM DRY DENSITY WITH OMC TOLERANCE OF ± 4% WHEN TESTED IN ACCORDANCE AASHTO T 180 METHOD D.
- 19.3 THE BASE COURSE MATERIAL SHALL HAVE A CBR VALUE OF AT LEAST 65% AT SPECIFIED COMPACTION WHEN TESTED IN ACCORDANCE WITH AASHTO T 193.
- 19.4 THE COARSE AGGREGATE OF BASE COURSE SHALL NOT SHOW MORE THAN 50% LOSS WHEN TESTED IN ACCORDANCE TO ASTM C131 FOR LOS ANGELES ABRASION.
- 19.5 THE COARSE FRACTION RETAINED ON EACH SIEVE SHALL HAVE AT LEAST 2 OR MORE FRESHLY FRACTURED FACES.
- 19.6 THE FRACTION RETAINED ON 12.5MM SIEVE SHALL NOT HAVE MORE THAN 30% FLAT AND ELONGATED PARTICLES WHEN TESTED IN ACCORDANCE WITH ASTM D5821.

20. PLUM CONCRETE PAVEMENT
(IF APPLICABLE IN THE PROJECT)

- 20.1 THE PLUM CONCRETE PAVEMENT SHOULD COMPLY WITH SECTION 7700 OF MINOR WORK SPECIFICATION.
- 20.2 THE PLUM CONCRETE PAVEMENT SHOULD BE CONSTRUCTED AS A MONOLITHIC STRUCTURE. MEANS THE BEDDING LEAN CONCRETE, PLUMS AND FILLING OR SURFACE CONCRETE SHALL BE POURED WITHIN THE INITIAL SETTING TIME OF THE CONCRETE.
- 20.3 THE PLUM CONCRETE PAVEMENT SHOULD BE FURNISHED IN THE PRESIZED SLABS (BOXES IN SHAPE) AS DIRECTED BY SECTION 7700 OF MINOR WORK SPECIFICATION.
- 20.4 THE PLUM CONCRETE SURFACE SHOULD BE CONSTRUCTED IN BLOCKS OF MAXIMUM 5 METRES IN LENGTH AND THE WIDTH SHOULD BE HALF OF THE ROAD WIDTH (WHEN THE PAVEMENT WIDTH IS 5 OR MORE THAN 5 METRES). AS THE CONCRETE WORK IS POURED IN-SITU ON THE WORK SITE, IT IS IMPORTANT TO KEEP TRAFFIC OPEN DURING THE CONSTRUCTION PERIOD.
- 20.5 THE JOINTS SHALL BE FORMED AND FILLED AS DIRECTED BY SECTION 7700 OF MINOR WORK SPECIFICATION, AND DRAWINGS.
- 20.6 THE CONCRETE FINISHED SURFACE SHOULD BE BROOMED AS DIRECTED BY MINOR WORK SPECIFICATION.
- 20.7 THE CONCRETE USED FOR THE PLUM CONCRETE PAVEMENT SHOULD HAVE A MINIMUM STRENGTH OF 25MPA IN 28DAYS CRUSHING AGE TESTED BY 150MM DIAMETER CYLINDRICAL SPECIMENS.
- 20.8 EXPANSION JOINT: FORM FOR EXPANSION JOINTS SHALL BE PLACED IN EACH 16.0M INTERVAL. THE OPEN JOINTS SHALL BE CONSTRUCTED BY THE INSERTION AND SUBSEQUENT REMOVAL OF WOOD OR FOAM STRIP. CARE SHALL BE TAKEN TO REMOVE THE FORMER WITHOUT CHIPPING OR BREAKING THE CORNERS OF THE CONCRETE. REINFORCEMENT SHALL NOT USE ACROSS ANY EXPANSION JOINT UNLESS SO SPECIFIED ON THE DRAWINGS.
- 20.9 CONSTRUCTION JOINT: CONSTRUCTION JOINTS ARE SURFACES WHERE TWO SUCCESSIVE PLACEMENTS OF CONCRETE MEET. THEY ARE TYPICALLY PLACED AT THE END OF A DAY'S WORK BUT MAY BE REQUIRED WHEN CONCRETE PLACEMENT IS STOPPED FOR LONGER THAN THE INITIAL SETTING TIME OF CONCRETE. TO CREATE THE GOOD BOUND BETWEEN NEW AND OLD CONCRETE THE FACE OF THE OLD CONCRETE MUST BE WELL CLEANED FROM THE DUST AND ANY OTHER OBJECTIVES SUCH AS FUEL OR GRASS, AFTER POURING CONCRETE THE JOINT SHALL BE FILLED WITH THE APPROVED MATERIAL AS STATUS IN ARTICLE 20.12 BELOW.
- 20.10 CONTRACTION JOINTS SHALL BE CONSIDERED ALONG THE LENGTH OF THE STREET, THE CONTRACTION JOINT SHALL BE IN EACH 4.0M INTERVAL, THE JOINT SHALL BE FORMED BY THE SAW CUT AT THE DEPTH OF T/3-T/4. T IS THE TOTAL DEPTH OF THE PLUM CONCRETE DURING THE CUTTING CARE SHALL BE TAKEN TO FORM THE JOINT WITHOUT CHIPPING OR BREAKING THE CORNERS OF THE CONCRETE.
- 20.11 JOINT SEALING: BEFORE JOINTS SEALING, THE JOINTS SHALL BE PROPERLY CLEANED AND MAKE THEM EMPTY FROM EXTRA OR HAZARDOUS MATERIALS. THE FORMED JOINTS BETWEEN THE CONCRETE SLABS (BOXES) SHALL BE PROPERTY FILLED WITH SAND/BITUMEN MIXTURE COMPLYING WITH THE REQUIREMENTS OF THE JOINTS SEALING MATERIAL STATED IN SECTION 7402 OF SPECIFICATION.

21. DRESSED STONE PAVEMENT
(IF APPLICABLE IN THE PROJECT)

- 21.1 THE DRESSED STONE AND BLINDING MATERIAL SHALL COMPLY WITH SECTION 7402 OF MINOR WORK SPECIFICATION.
- 21.2 STONES SHALL BE CLEAN, HARD, DURABLE, SOLID, FREE OF CRACKS, SOFT AND LOOSE PIECES, IT SHOULD BE CUBIC OR RECTANGULAR IN SHAPE, AND SHOULD NOT CRACK UNDER THE IMPACT OF COMPACTION EQUIPMENT.
- 21.3 THE STONES SHALL HAVE UNIFORM COLOR AND SHALL BE PLACED IN CIRCULAR, PARABOLIC OR OTHER LINES AS DIRECTED BY THE ENGINEER.
- 21.4 THE STONE SHALL BE PLACED IN A MANOR TO PROVIDE A TIGHT AND SMOOTH SURFACE FOR TRAFFIC MOVEMENT.
- 21.5 BLINDING MATERIALS (COARSE SAND) SHALL CONSIST OF COARSE SAND PRODUCED FROM THE CRUSHING OF ROCKS OR GRAVEL IN THE CRUSH-PLANT. THE SAND MUST BE CLEAN, FREE OF LEAVES, GRASS, COMPOST, CLAY LUMPS, OR DUST, ETC. THE FRACTION PASSING 75 MICRON SIEVE SHALL NOT EXCEED 5% OR AS DIRECTED BY THE ENGINEER CONSIDERING THE PROJECT SITE REQUIREMENTS AND NEEDS.

22. INSTALLATION OF BARRIERS
(IF APPLICABLE IN THE PROJECT)

- 22.1 IN ORDER TO LIMIT THE ENTRANCE OF HEAVY VEHICLES, IN ALL THE PLUM CONCRETE STREETS, WHERE THE WIDTH OF THE STREET IS ≥ 4M, BARRIERS HAVE TO BE INSTALLED AT THE START AND END OF THE STREETS. THE BARRIER SHOULD BE MADE OF THE CONCRETE WELL RINGS, AS INSTRUCTED AND APPROVED BY THE UNOPS SITE ENGINEER
- 22.2 THE BARRIER SHOULD NOT BE INSTALLED AT DEAD-END STREETS (CLOSED STREETS).

23. BRICK MASONRY

- 23.1 THE BRICK MASONRY WORK SHALL COMPLY WITH SECTION 8200 OF MINOR WORK SPECIFICATION.
- 23.2 THE MORTAR FOR BRICK MASONRY SHALL BE OF THE CEMENT:SAND RATIO OF 1:3, AND FOR POINTING SHALL BE 1:1.
- 23.3 THE BRICK FOR MASONRY SHALL BE 1ST CLASS BRICK, WITH A COMPRESSIVE STRENGTH NOT LESS THAN 7MPA WHEN TESTED AS PER ASTM C62.
- 23.4 BEFORE USE IN MASONRY, THE BRICK SHALL BE SOAKED IN WATER FOR AT LEAST 3 HOURS.

24. STONE MASONRY
(IF APPLICABLE IN THE PROJECT)

- 24.1 THE STONE MASONRY WORK SHALL COMPLY WITH SECTION 8100 OF MINOR WORK SPECIFICATION.
- 24.2 NO STONE TO STONE CONTACT IS ALLOWED FOR THE STONE MASONRY WORK, ALL THE STONES MUST BE PLACED OVER THE LAYER OF MORTAR, THE STONE MUST BE PLACED WITH THE LARGEST DIMENSION IN HORIZONTAL PLANE.
- 24.3 THE MORTAR FOR STONE MASONRY SHALL BE OF THE CEMENT:SAND RATIO OF 1:3.
- 24.4 CONSIDER CONSTRUCTION JOINTS AT EACH 10.0M INTERVAL FOR THE STONE MASONRY RETAINING WALLS, THE JOINT WIDTH SHALL BE (40-50)MM AND THE JOINT SHALL BE FILLED BY THE ORDINARY FOAM
- 24.5 COPPING CONCRETE (PCC ON TOP OF WALLS) SHOULD BE OF 25MPA STRENGTH AND CONCRETE IN FOUNDATION OF WALLS' SHOULD BE OF 15MPA OR (1:2:4 BASED ON ENGINEER'S APPROVALS) AS SHOW IN THE DESIGN DRAWINGS.
- 24.6 THE TOP PCC SHALL HAVE CONTRACTION JOINTS AT EACH 2M INTERVAL, THE WIDTH AND DEPTH OF THE JOINT SHALL BE 20MM.
- 24.7 CURING OF MASONRY AND PCC SHALL DONE REGULARLY TO KEEP THE MASONRY AND CONCRETE CONTINUOUSLY WET FOR AT LEAST ONE WEEK.

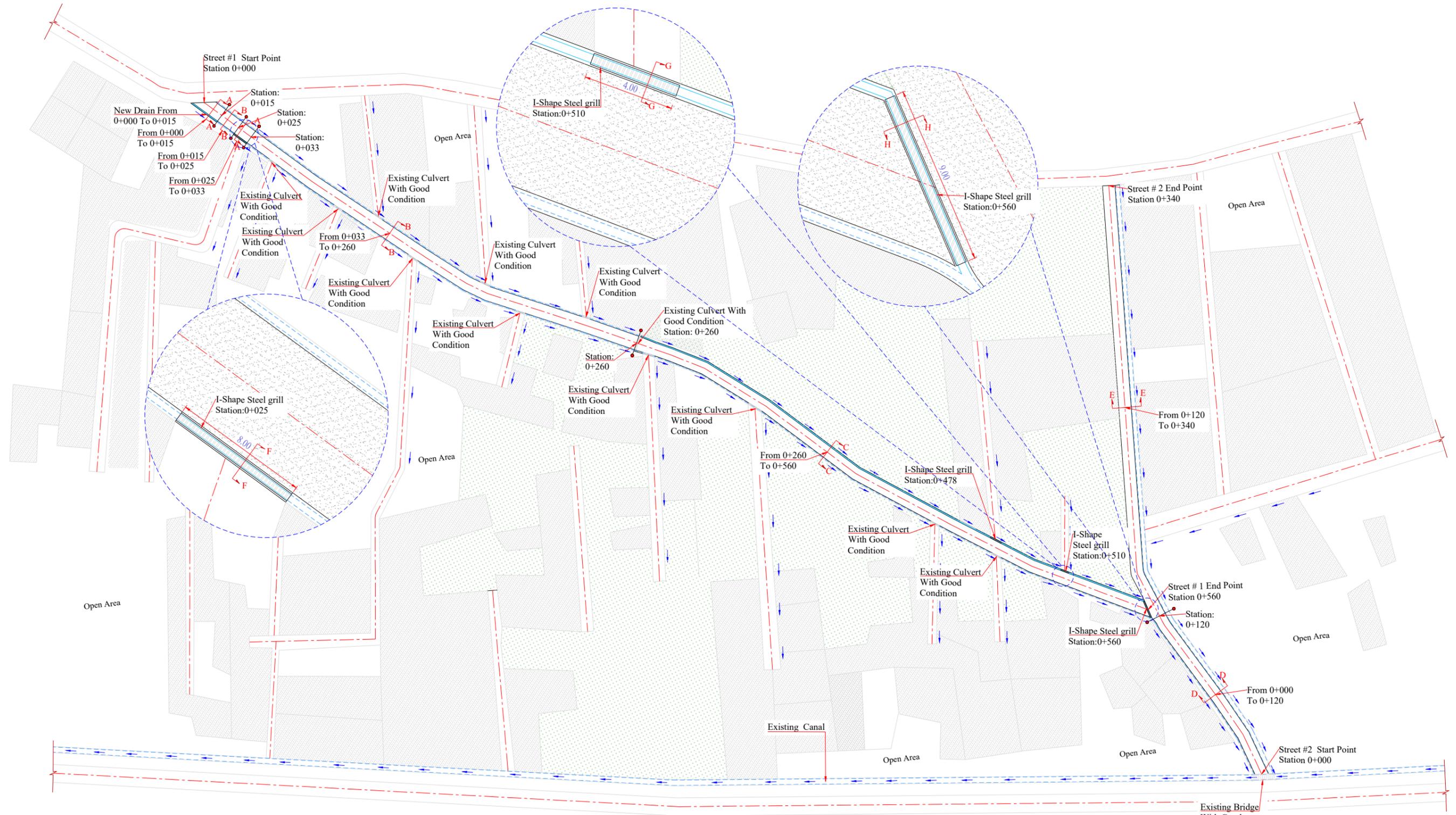
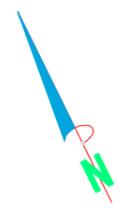
25. STEEL GRILL
(IF APPLICABLE IN THE PROJECT)

- 25.1 THE STEEL GRILL ANCHOR BARS SHALL BE FULLY EMBEDDED IN THE CONCRETE.
- 25.2 GOOD QUALITY OF THE WELD BARS MUST BE USED IN WELDING WORK TO PROVIDE THE GOOD CONNECTION.
- 25.3 TYPE OF WELD SHALL BE ARCH AND THE MINIMUM THICKNESS OF THE WELD SHALL BE 3MM.
- 25.4 THE MAXIMUM SPACING BETWEEN EACH OPENING ALONG THE LENGTH OF THE STEEL GRILL MUST NOT BE EXCEEDED THAN THOSE SHOWN IN THE TYPICAL DESIGN DRAWINGS.
- 25.5 FOR LENGTH AND WIDTH OF THE STEEL GRILLS REFER TO THE STEEL GRILL TABLES.
- 25.6 THE APPROXIMATE INITIAL SHAPES (L-SHAPE, T-SHAPE, I-SHAPE, X-SHAPE, CURVE SHAPE, ETC) OF STEEL GRILLS ARE SHOWN IN THE SITE PLAN PAGE OF THE DESIGNED DRAWINGS, WHICH ARE TENTATIVE AND FOR INFORMATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT SHAPE OF THE GRILL CONSIDERING THE ON-SITE CONDITIONS WHICH WILL BEST SUIT & FIT THE SITE. BEFORE IMPLEMENTATION OF ANY CHANGES IN THE STEEL GRILL SHAPE THE CONTRACTOR SHALL ATTAIN UNOPS'S ENGINEER APPROVAL. THE OTHER PARAMETERS OF THE STEEL GRILLS SHALL BE IMPLEMENTED AS GUIDED IN THE 25.4 NOTE ABOVE.
- 25.7 ALL THE STEEL GRILL MUST BE PAINTED WITH TWO COATS OF ANTI RUST, AND A LAYER OF OIL-BASED PAINT.
- 25.8 IN CASE OF CURVE STEEL GRILL, THE CONTRACTOR NEED TO CUT THE STEEL AS A TRIANGULAR PART ALONG THE LENGTH OF STEEL ANGLE TO OBTAIN THE REQUIRED BEND(ANGLE), IN THIS CASE THE TRIANGULAR CUTTING PART OF THE STEEL MUST BE FILLED WITH WELDING TO WITHSTAND THE APPLIED FORCE.

26. INTERLOCKING PAVEMENT
(IF APPLICABLE IN THE PROJECT)

- 26.1 COMPRESSIVE STRENGTH OF THE INTERLOCKING PAVING SAMPLE UNITS SHALL NOT BE LESS THAN 40MPA, WITH NO INDIVIDUAL UNIT LESS THAN 35MPA, WHEN TESTED AS PER ASTM C140, AT LEAST THREE FULLSIZE SAMPLES SHALL BE TESTED FOR DETERMINING THE COMPRESSIVE STRENGTH OF THE INTERLOCKING UNITS.
- 26.2 THE COLOR OF INTERLOCKING CONCRETE PAVERS SHALL BE SELECTED AND APPROVED BY THE UNOPS ENGINEER AT SITE.
- 26.3 THE EDGE CURB STONE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25MPA AT 28 DAYS CRUSHING AGE BASED ON THE SPECIMEN SHAPE AS DIRECTED BY THE TECHNICAL SPECIFICATION. THE PRECAST CURBS SHALL BE AND HAVE GOOD WORKMANSHIP. THE JOINTS BETWEEN INDIVIDUAL CURB STONE SHALL BE PROPERLY FORMED AND FILLED WITH SUITABLE MATERIALS (1:3 CEMENT TO FINE SAND MORTAR) OR AS DIRECTED BY THE TECHNICAL SPECIFICATION.
- 26.4 THE EDGE CURB STONES CONSTRUCTED AS CAST-IN-PLACE (MONOLITHIC) CONCRETE IN SITE, SHALL HAVE A CONSTRUCTION JOINT OF 20MM AT EACH 3M INTERVAL, THE JOINT MATERIAL SHALL BE STYROFOAM.
- 26.5 THE SIDE DRAIN SHALL BE REPAIRED AS REQUIRED IN THE PROJECT SITE (BOTH SIDES) AFTER RECEIVING APPROVAL FROM UNOPS ENGINEER. THE REPAIR WORK MAY INCLUDE STONE MASONRY TO THE SIDE WALK GRADE LEVEL, POINTING, AND CAPPING (75MM THICK PLAIN CONCRETE ON TOP OF STONE MASONRY WALL). THE CAPPING JOINTS SHALL BE FORMED IN UNIFORM DISTANCES AS INSTRUCTED BY THE UNOPS SITE ENGINEER.
- 26.6 INTERLOCKING CONCRETE PAVEMENT WIDTH SHALL NOT BE EXCEED AS SHOWN IN THE DRAWINGS AND THE MINIMUM WIDTH SHALL BE ADJUSTED AS PER PROJECT REQUIREMENTS. IF THE WIDTH OF SIDEWALK FOR A SMALL LENGTH INCREASING THAN THE MAXIMUM WIDTH SHOWN IN THE DRAWINGS, THE WIDTH CAN BE INCREASED CONSIDERING THE AVAILABILITY OF THE QUANTITIES IN THE BOQ, AND AFTER RECEIVING UNOPS ENGINEER APPROVAL.
- 26.7 THE UNOPS AND CONTRACTOR ENGINEER SHALL ASSESS THE CONDITION OF THE EXISTING SIDEWALK SURFACE IN THE PROJECT SITE, BASED ON THE ASSESSMENT THE ENGINEERS SHALL TAKE DECISION WHETHER TO DEMOLISH THE EXISTING SURFACE AND REPLACE IT WITH THE NEW INTERLOCKING PAVEMENT OR LEAVE IT AS IT IS.
- 26.8 THE GRADE LEVEL OF SIDEWALK SHALL BE ADJUSTED AS PER SITE REQUIREMENTS.
- 26.9 IN AREAS WHERE VEHICLES ARE CROSSING THE SIDEWALK, THE INTERLOCKING PAVERS SHALL BE CHANGED TO PLUM CONCRETE SURFACE BY THE INSTRUCTION AND APPROVAL OF UNOPS ENGINEER.

No	DESCRIPTION	DATE	SURVEYED BY	UNOPS SITE TEAM	AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT UNITED NATION OFFICE FOR PROJECT SERVICES  	PROJECT NAME	CONSTRUCTION OF SULTAN MAHMOOD GHAZNAWI PLUM CONCRETE SURFACE STREETS WITH A TOTAL LENGTH OF 900M IN CDC #6 AND #7 OF DISTRICT #9 OF HERAT CITY		
			DESIGNED BY	HAMIDULLAH SAHIL		PROJECT ID	HRT/DIS#9/SP03		
			DRAWN BY	LEMA BARAKZAI		DRAWING TITLE	GENERAL NOTES		
			CHECKED BY	ABDUL WASAY AMIN		DRAWING SCALE	AS SHOWN	PLOT DATE: NOV -2024	03 OF 12
			REVIEWED BY	PEER REVIEWER					
			APPROVED BY	IPMG					



- NOTE:**
1. NORTH INDICATED IN THE DRAWINGS IS TRUE NORTH.
 2. THE ELEVATION OF STREET SURFACE SHALL BE ADJUSTED AS PER SITE REQUIREMENT
 3. THE SLOPE OF THE DRAINAGE SHALL BE ADJUSTED AS PER SITE CONDITION
 4. ALL DIMENSIONS ARE IN METER

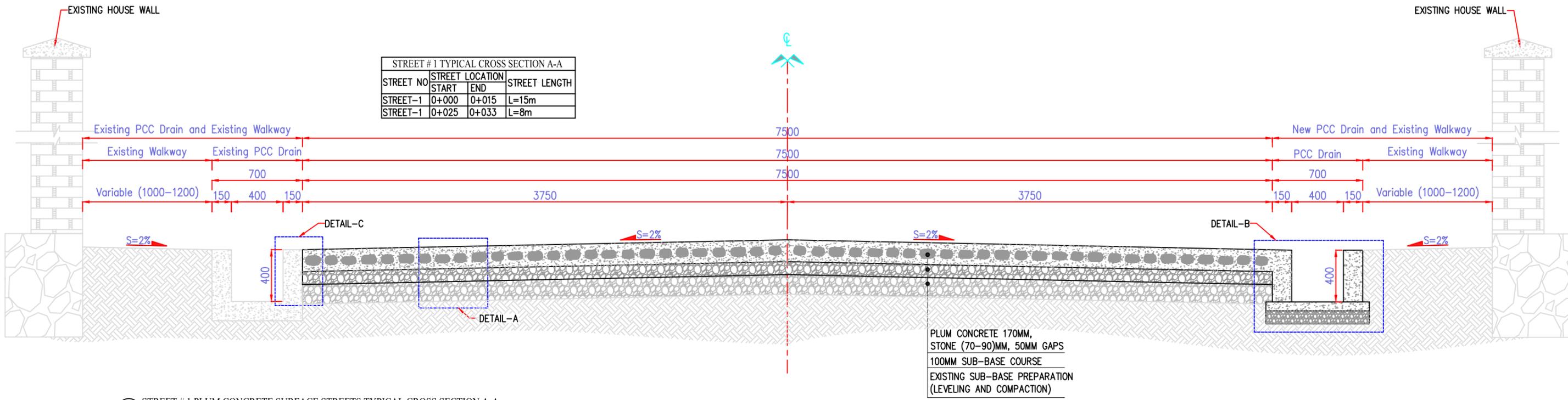
GENERAL SITE PLAN
SCALE 1:2000

No	DESCRIPTION	DATE	SURVEYED BY	UNOPS SITE TEAM
	DESIGNED BY		HAMIDULLAH SAHIL	
	DRAWN BY		LEMA BARAKZAI	
	CHECKED BY		ABDUL WASAY AMIN	
	REVIEWED BY		PEER REVIEWER	
	APPROVED BY		IPMG	

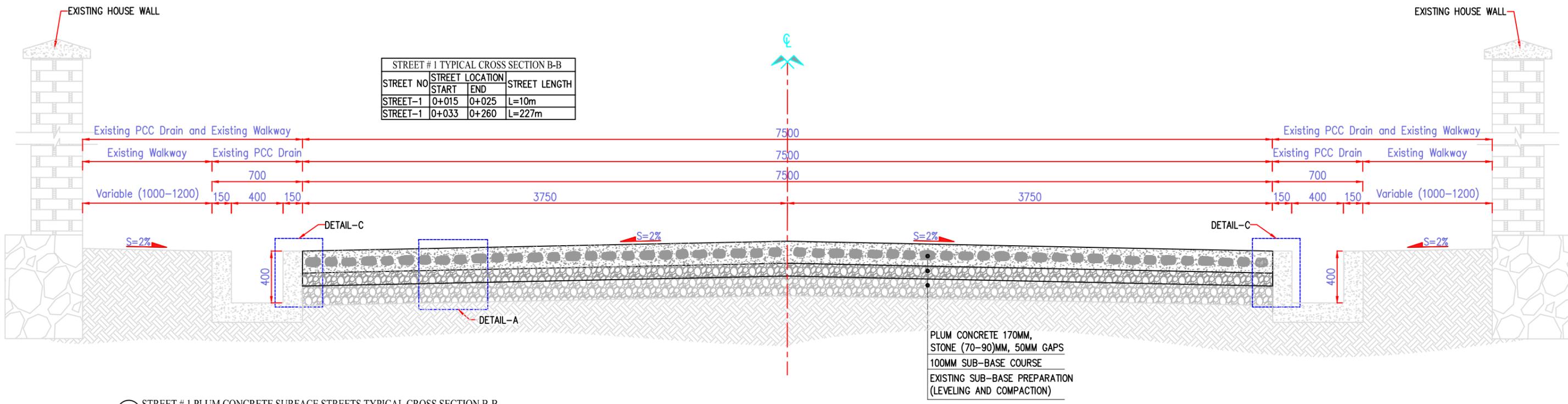
AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT
UNITED NATION OFFICE FOR PROJECT SERVICES



PROJECT NAME	CONSTRUCTION OF SULTAN MAHMOOD GHAZNAWI PLUM CONCRETE SURFACE STREETS WITH A TOTAL LENGTH OF 900M IN CDC #6 AND #7 OF DISTRICT #9 OF HERAT CITY		
PROJECT ID	HRT/DIS#9/SP03		
DRAWING TITLE	SITE PLAN		
DRAWING SCALE	AS SHOWN	PLOT DATE: NOV -2024	05 OF 12

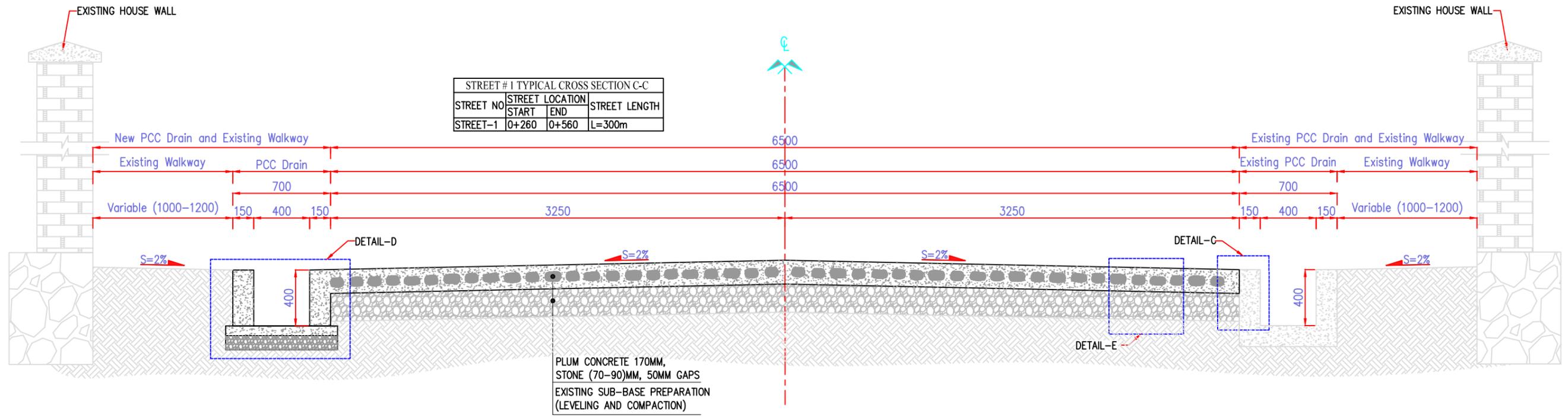


01 STREET # 1 PLUM CONCRETE SURFACE STREETS TYPICAL CROSS SECTION A-A
SCALE 1:30

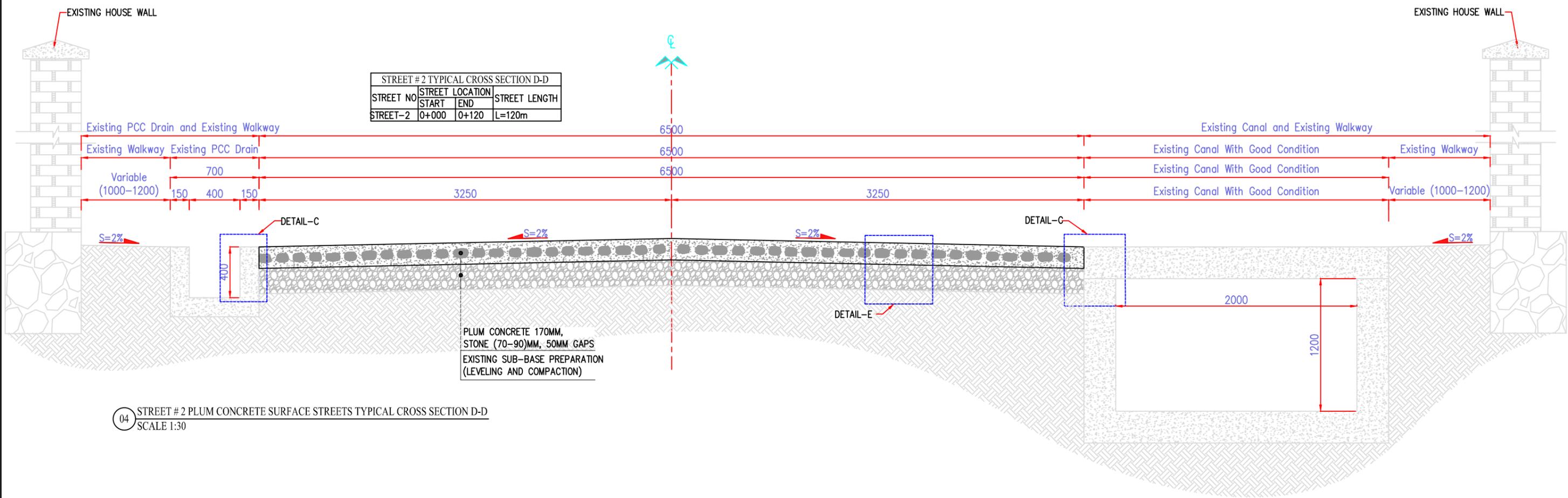


02 STREET # 1 PLUM CONCRETE SURFACE STREETS TYPICAL CROSS SECTION B-B
SCALE 1:30

No	DESCRIPTION	DATE	SURVEYED BY	UNOPS SITE TEAM	AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT UNITED NATION OFFICE FOR PROJECT SERVICES  	PROJECT NAME	CONSTRUCTION OF SULTAN MAHMOOD GHAZNAWI PLUM CONCRETE SURFACE STREETS WITH A TOTAL LENGTH OF 900M IN CDC #6 AND #7 OF DISTRICT #9 OF HERAT CITY		
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			DRAWN BY	LEMA BARAKZAI		DRAWING TITLE	TYPICAL SECTION		
			CHECKED BY	ABDUL WASAY AMIN		DRAWING SCALE	AS SHOWN	PLOT DATE: NOV -2024	06 OF 12
			REVIEWED BY	PEER REVIEWER					
			APPROVED BY	IPMG					



03 STREET # 1 PLUM CONCRETE SURFACE STREETS TYPICAL CROSS SECTION C-C
SCALE 1:30

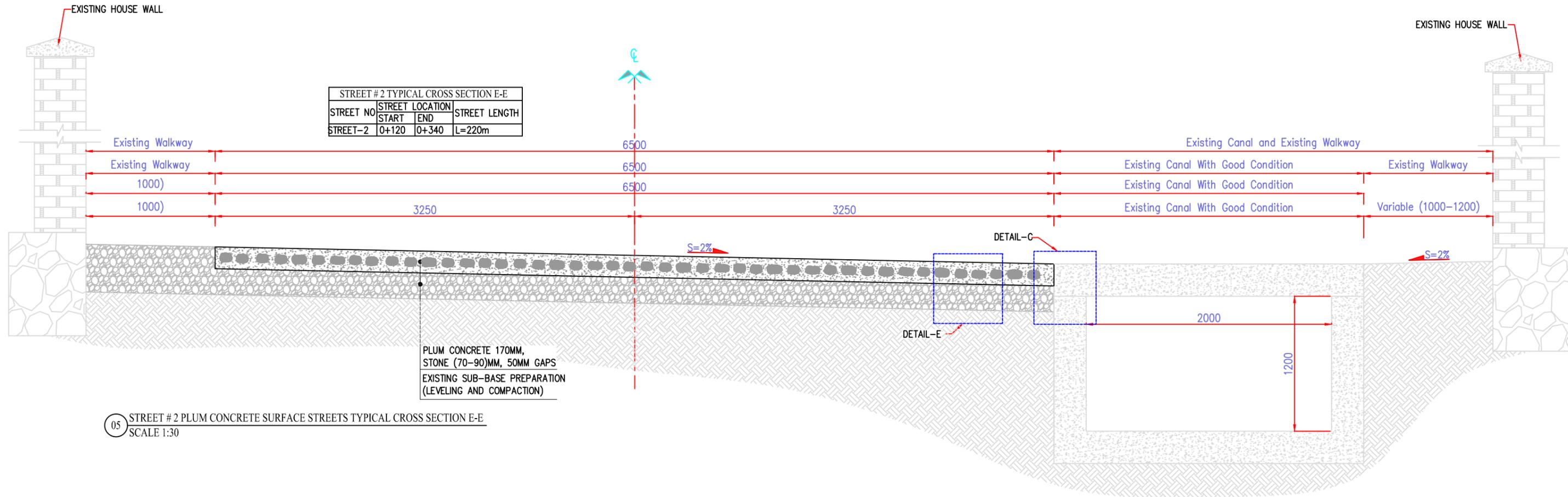


04 STREET # 2 PLUM CONCRETE SURFACE STREETS TYPICAL CROSS SECTION D-D
SCALE 1:30

No	DESCRIPTION	DATE	SURVEYED BY	UNOPS SITE TEAM	AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT UNITED NATION OFFICE FOR PROJECT SERVICES 	PROJECT NAME	CONSTRUCTION OF SULTAN MAHMOOD GHAZNAWI PLUM CONCRETE SURFACE STREETS WITH A TOTAL LENGTH OF 900M IN CDC #6 AND #7 OF DISTRICT #9 OF HERAT CITY			
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			DRAWN BY	LEMA BARAKZAI		DRAWING TITLE	TYPICAL SECTION			
			CHECKED BY	ABDUL WASAY AMIN		DRAWING SCALE	AS SHOWN	PLOT DATE:	NOV -2024	07 OF 12
			REVIEWED BY	PEER REVIEWER						
			APPROVED BY	IPMG						

CONSTRUCTION NOTE FOR DRAIN:

1. During the construction, if the steel grill or precast slab culverts are supposed to be placed over the top of streets drain please consider a construction joint between the drain walls and the streets's concrete during the construction as sections F-F,G-G, H-H.
2. If the steel grill or precast slabs over the streets are Not supposed to be installed please consider the drain walls and the streets's concrete as combined (monolithic) during the construction as details B,D.
3. Fill the joint with the same materials which are used for the joints along the streets in other parts.
4. Provide 20mm joint at the start and end point of those portion of the drain on which, the top of the drain is covered by the steel grill or precast slab culvert.



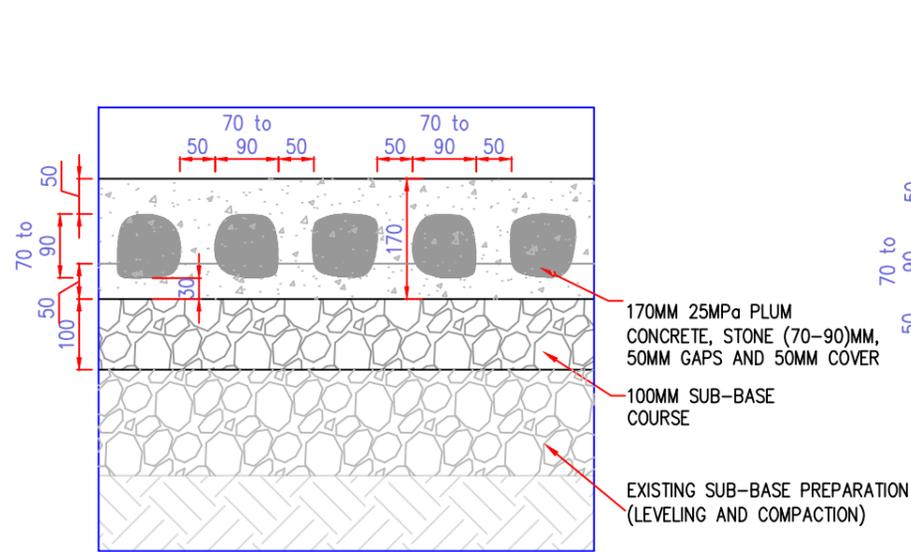
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			DRAWN BY	LEMA BARAKZAI
			CHECKED BY	ABDUL WASAY AMIN
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AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT
UNITED NATION OFFICE FOR PROJECT SERVICES

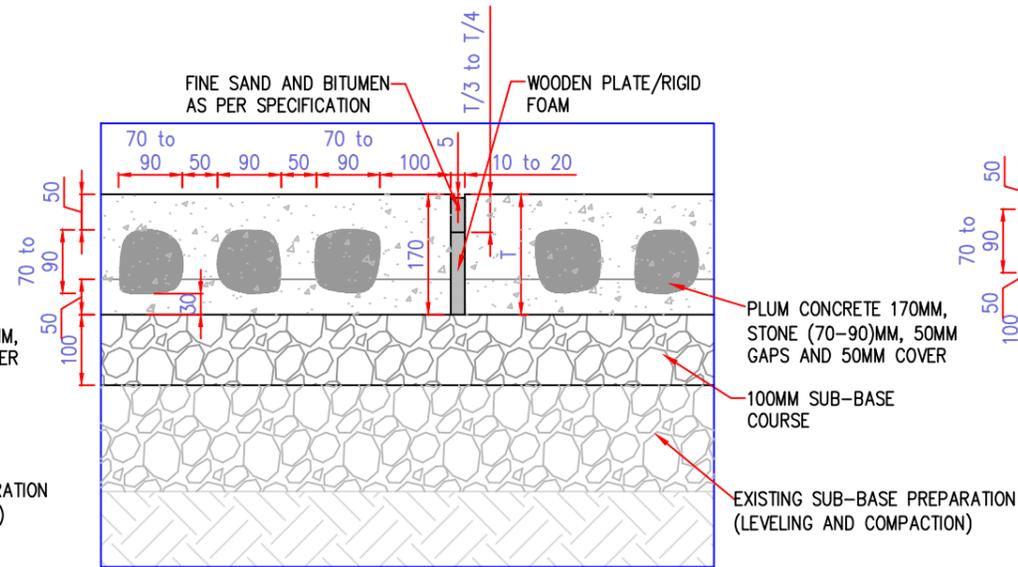
THE WORLD BANK

UNOPS

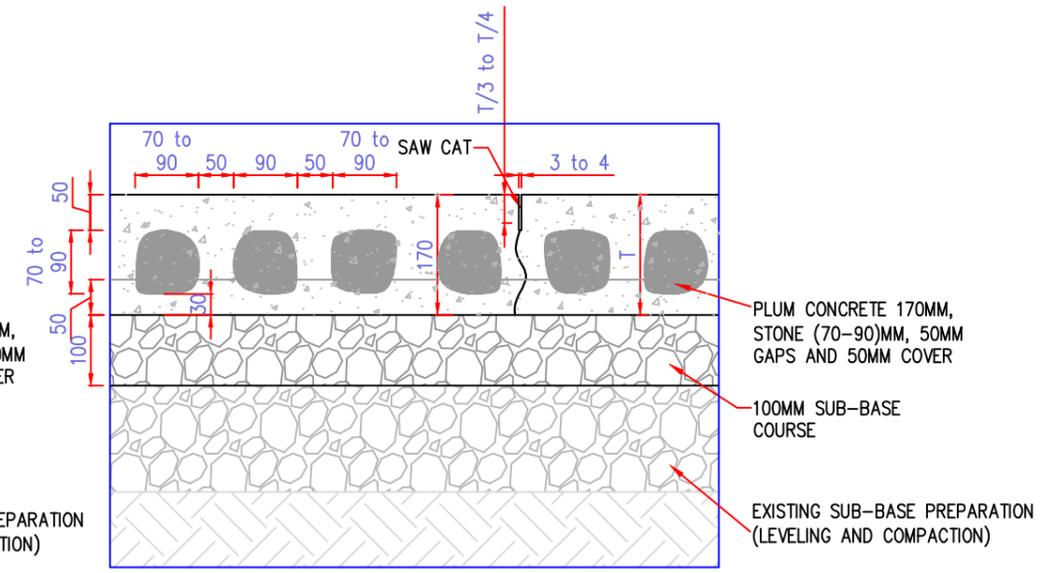
PROJECT NAME	CONSTRUCTION OF SULTAN MAHMOOD GHAZNAWI PLUM CONCRETE SURFACE STREETS WITH A TOTAL LENGTH OF 900M IN CDC #6 AND #7 OF DISTRICT #9 OF HERAT CITY		
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DRAWING TITLE	TYPICAL SECTION		
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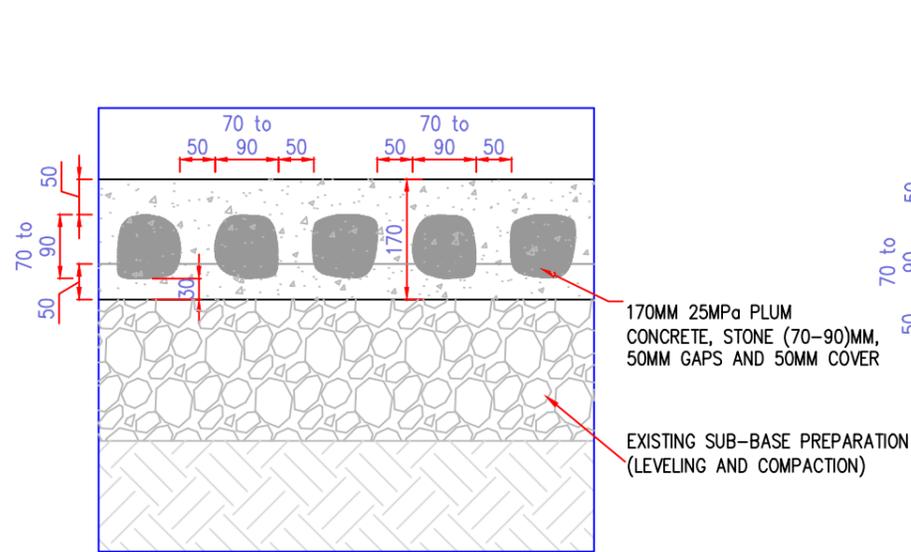
06 DETAIL - A
SCALE 1:10



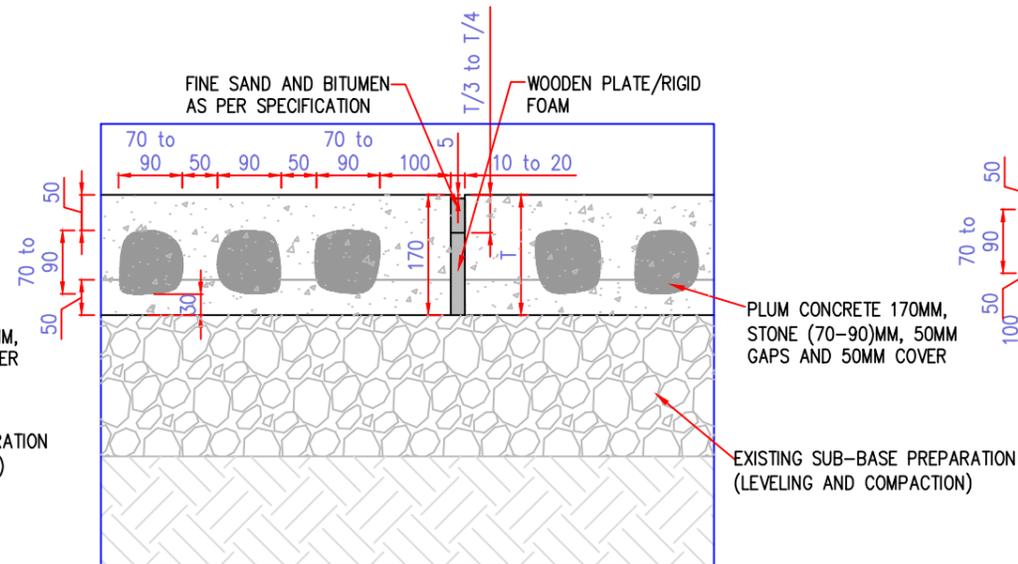
07 EXPANSION JOINT DETAIL
SCALE 1:10



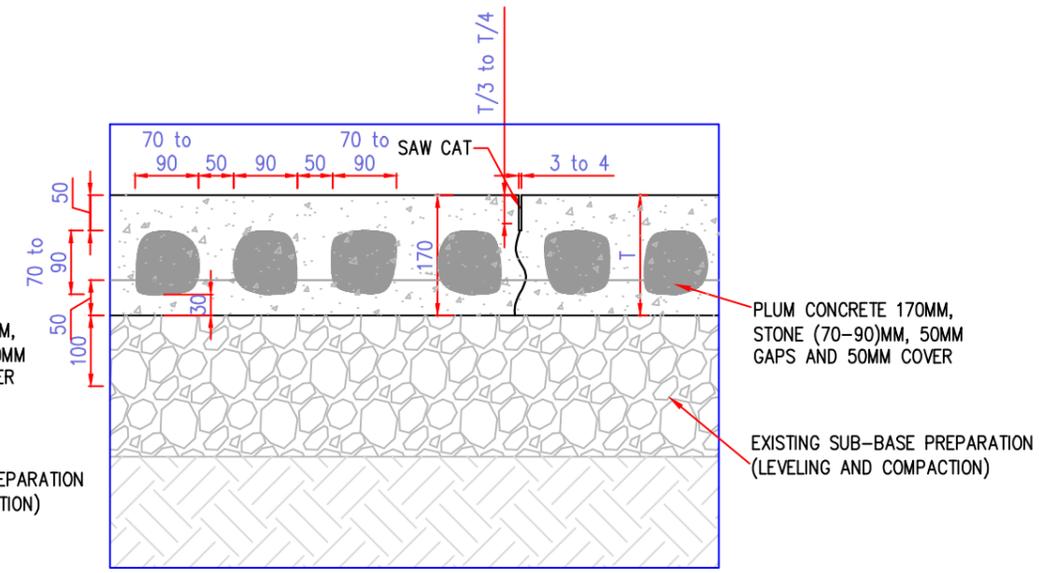
08 CONTRACTION JOINT DETAIL
SCALE 1:10



09 DETAIL - E
SCALE 1:10



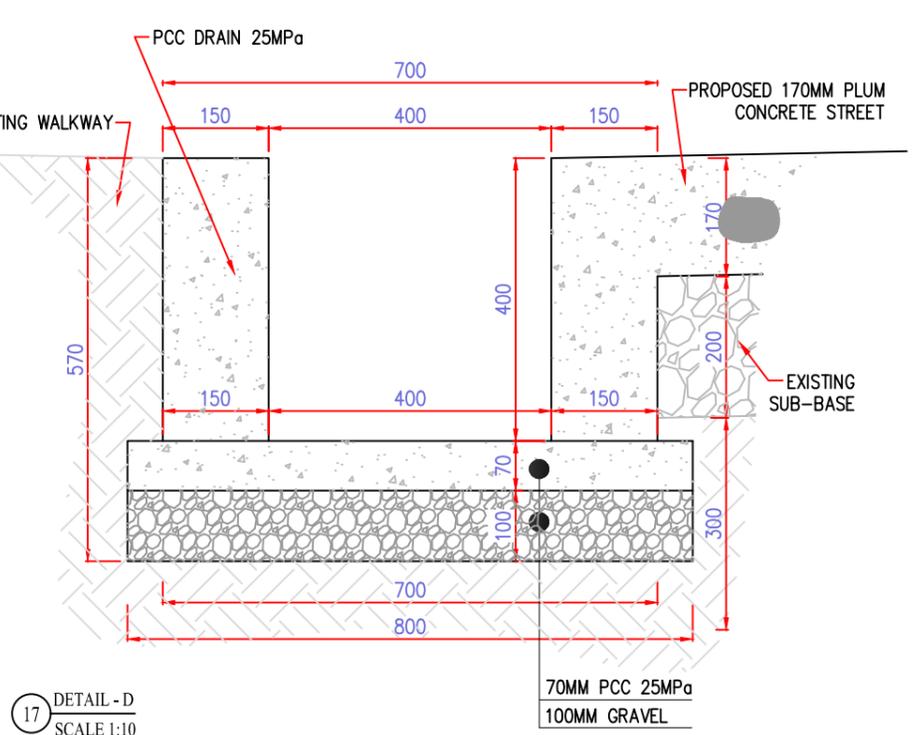
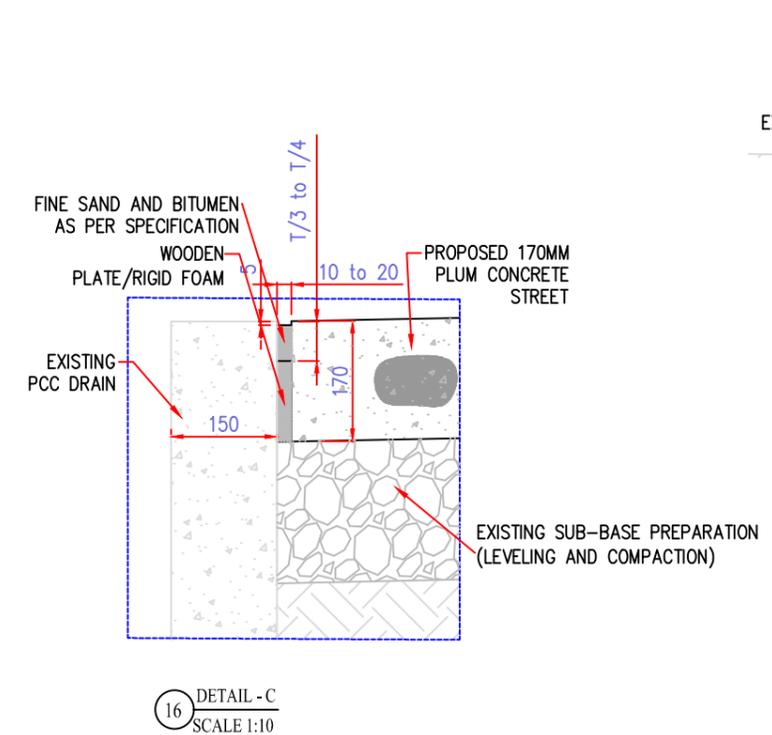
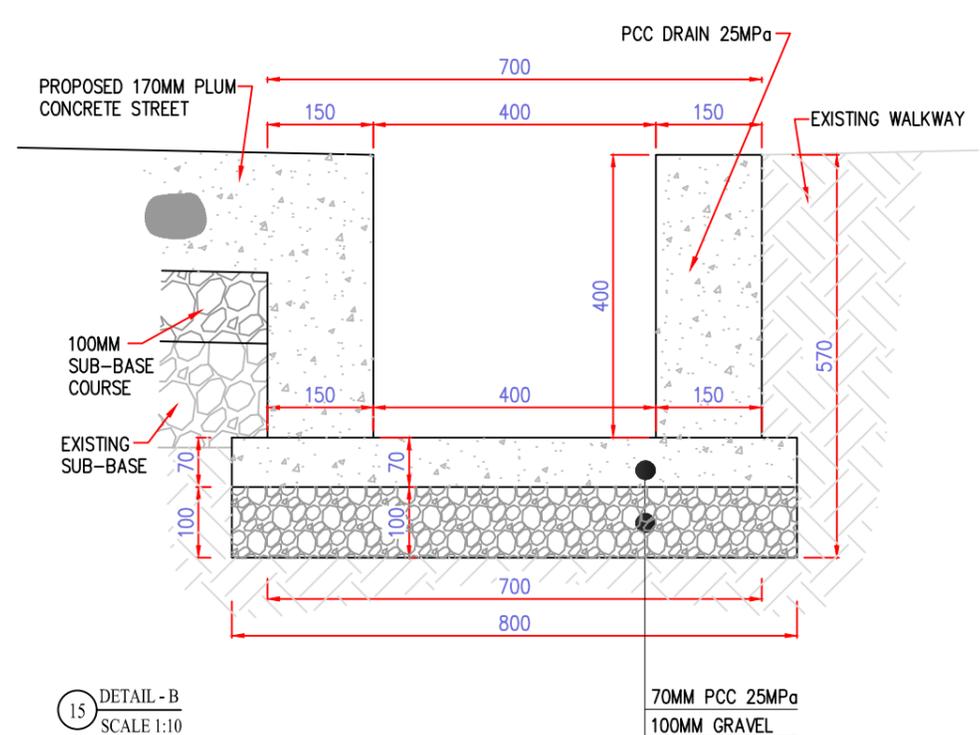
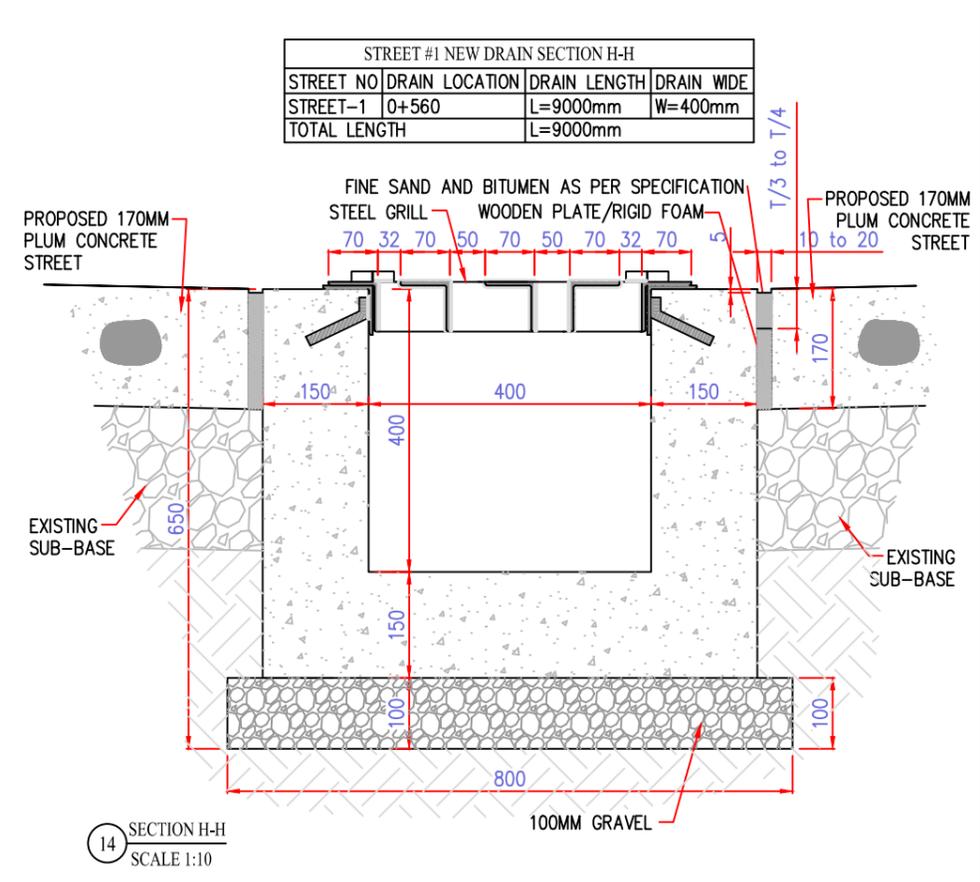
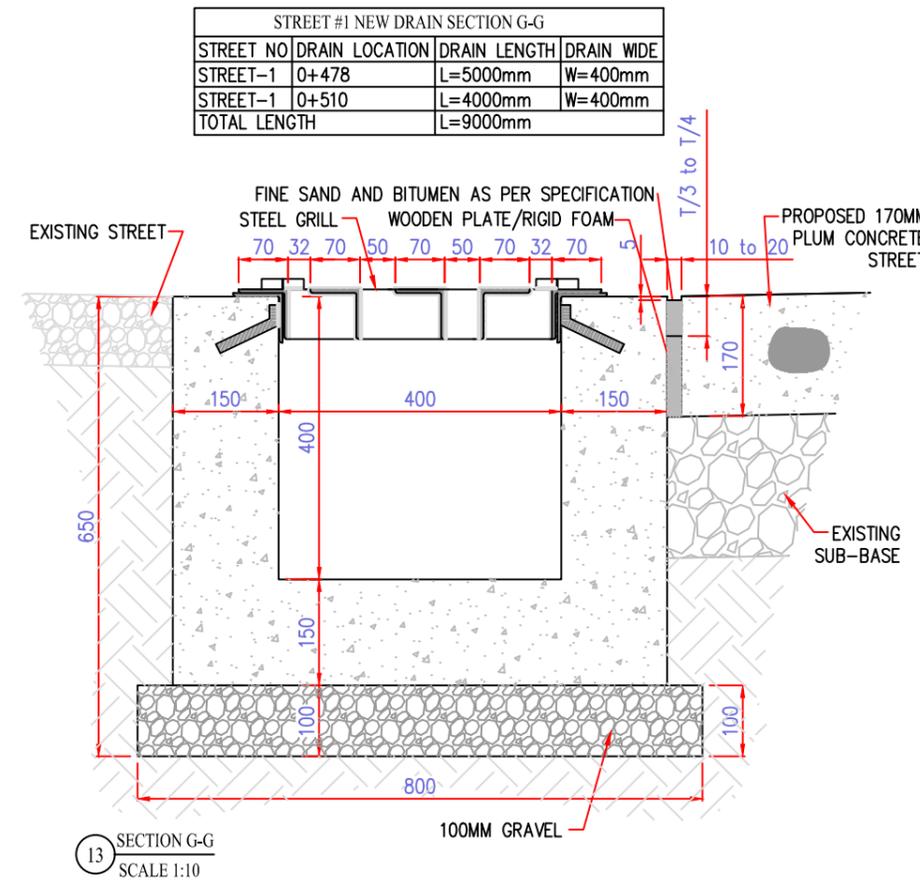
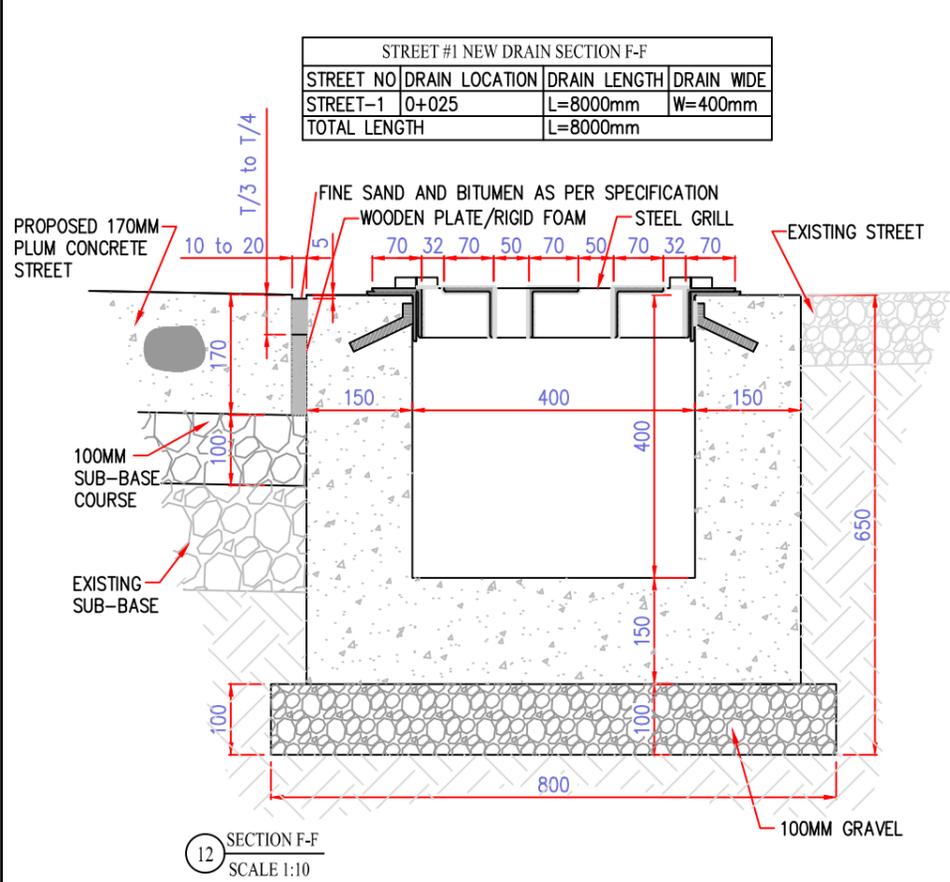
10 EXPANSION JOINT DETAIL
SCALE 1:10



11 CONTRACTION JOINT DETAIL
SCALE 1:10

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			DRAWN BY	LEMA BARAKZAI		DRAWING TITLE	TYPICAL SECTION		
			CHECKED BY	ABDUL WASAY AMIN		DRAWING SCALE	AS SHOWN	PLOT DATE: NOV -2024	09 OF 12
			REVIEWED BY	PEER REVIEWER					
			APPROVED BY	IPMG					



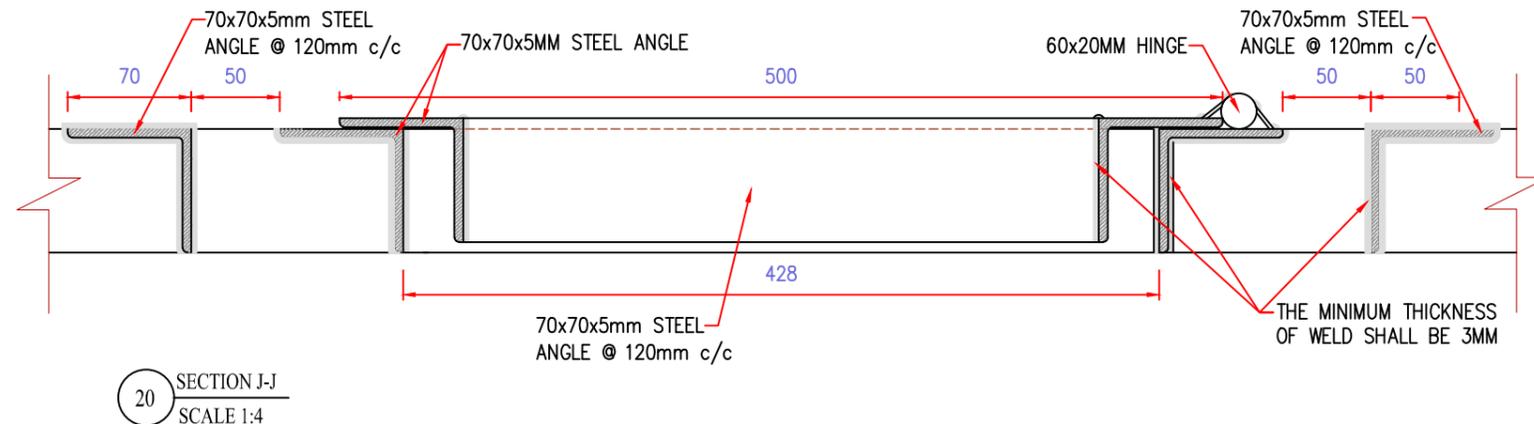
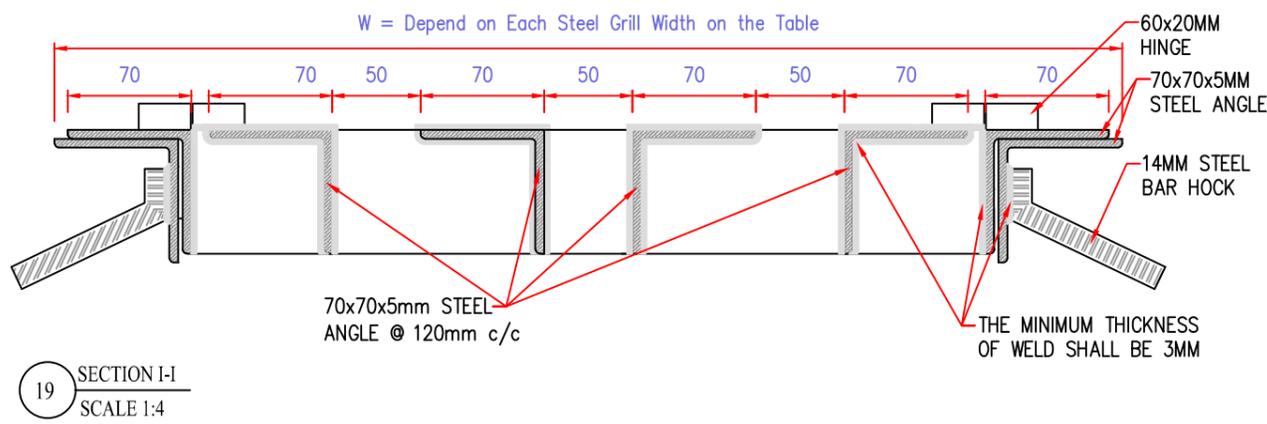
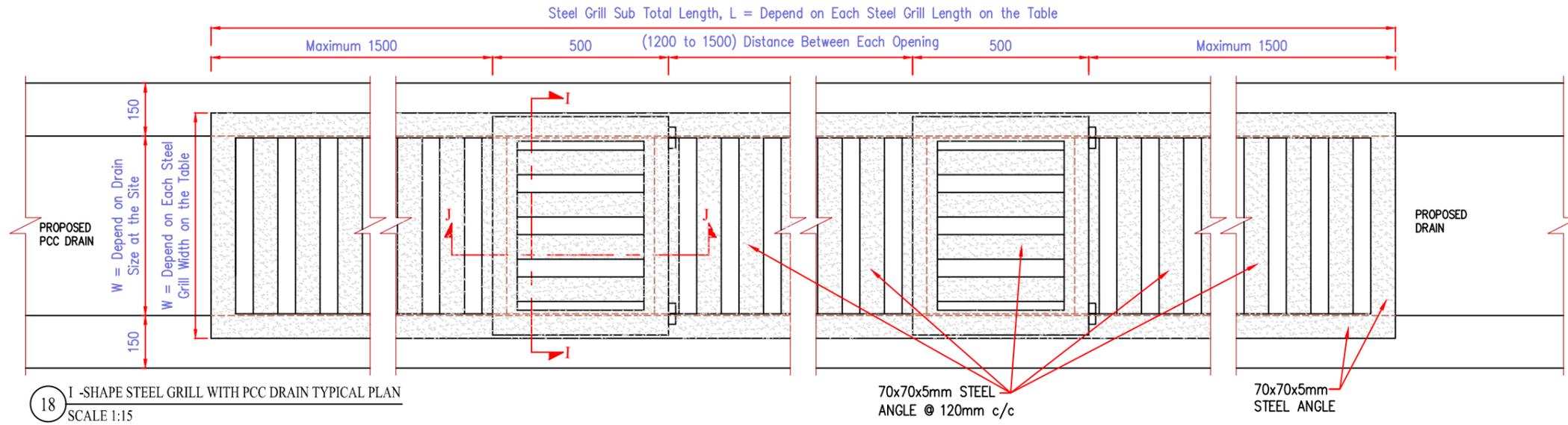


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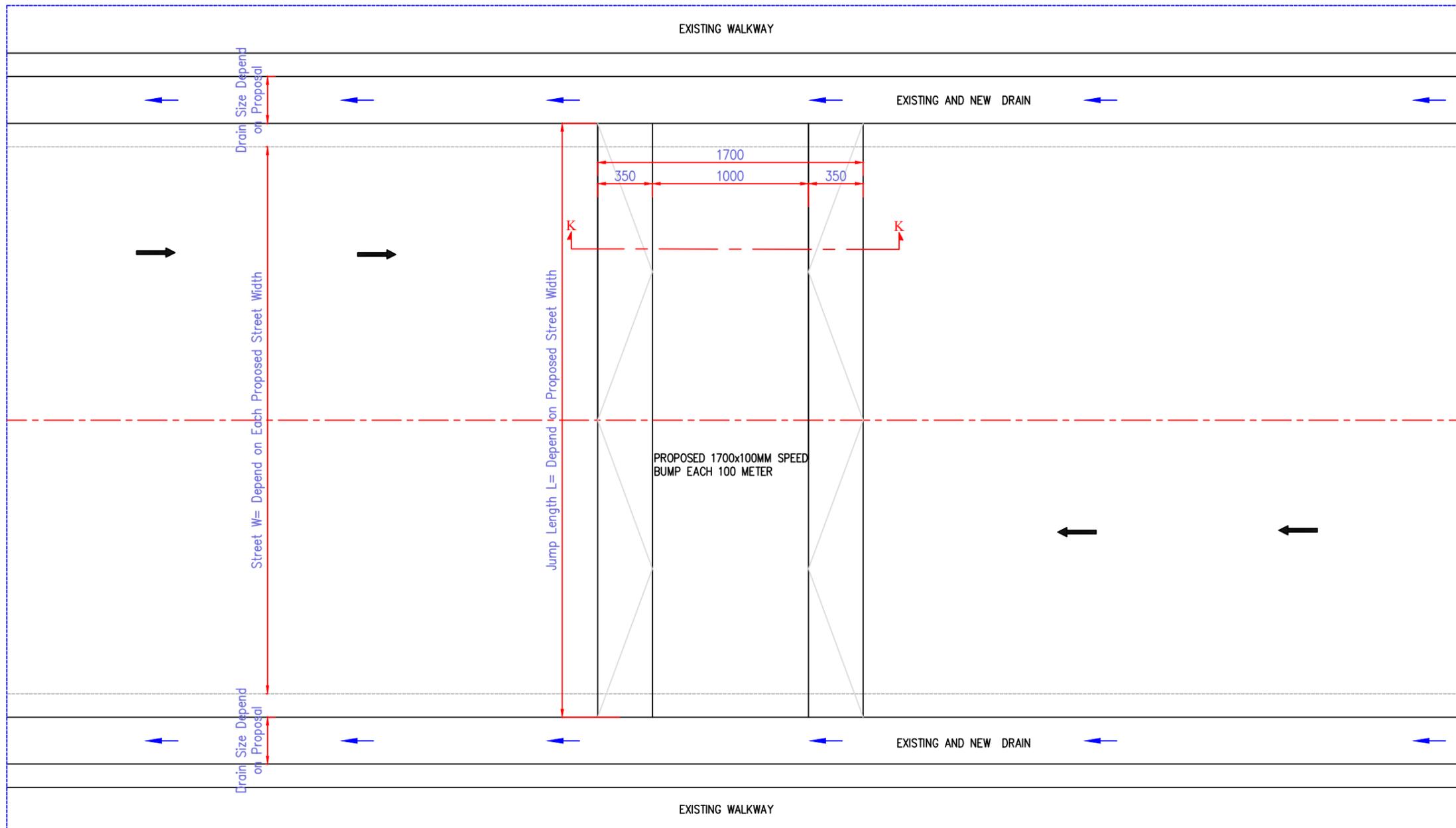
AFGHANISTAN COMMUNITY RESILIENCE & LIVELIHOODS PROJECT
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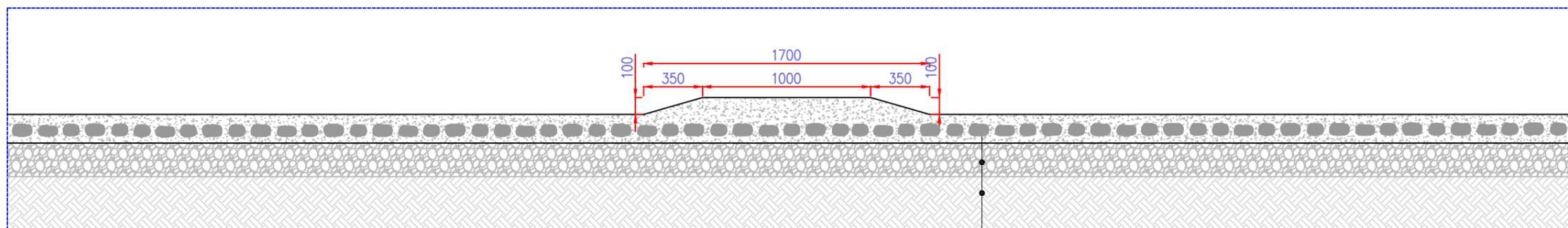
I-SHAPE STEEL GRILL TABLE						
NO	STREET NO	GRILL SHAPE	GRILL LOCATION	GRILL SUB TOTAL LENGTH (L)	GRILL WIDTH (W)	REMARKS
1	STREET-1	I - SHAPE	0+025	L=8000mm	W=540mm	
2	STREET-1	I - SHAPE	0+478	L=5000mm	W=540mm	
3	STREET-1	I - SHAPE	0+510	L=4000mm	W=540mm	
4	STREET-1	I - SHAPE	0+560	L=9000mm	W=540mm	
TOTAL LENGTH				L=26000mm		



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			REVIEWED BY	PEER REVIEWER						
			APPROVED BY	IPMG						



21 ALL STREET PROPOSED PLUM CONCRETE SURFACE SPEED BUMP TYPICAL PLAN
SCALE 1:30



22 SPEED BUMP TYPICAL CROSS SECTION K-K
SCALE 1:30

PLUM CONCRETE 170MM,
STONE (70-90)MM, 50MM GAPS
EXISTING SUB-BASE PREPARATION
(LEVELING AND COMPACTION)

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			REVIEWED BY	PEER REVIEWER					
			APPROVED BY	IPMG				12 OF 12	

