

SECTION 6 - SUB-SECTION J

**PRINCIPLES AND GUIDELINES FOR DESIGN OF THE
INFRASTRUCTURE OF ROADS, PLAZAS, EARTHWORKS AND
DRAINAGE, FENCE, PARKING AND GARDENING**

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1. General

1.1. As specified the site comprises the following component parts:

1. Perimeter fence, vehicle and pedestrian gates, emergency gates
2. Parking lots: cars & trucks.
 - Employees and visitor
 - Pre-Inspection Parking Lot.
 - Pre-Clearance Parking Lot
 - Manual area, pit area
3. Check-in/ checkout booths (Gate and workstations).
4. Radiography Building and installation
5. Manual Installation, Pit and office building
6. Customs House
7. Kennel area

1.2. This section includes guidelines for design of infrastructure of roads, plazas, earthwork, drainage, parking, gardening and perimeter fence.

2. Operational requirements

2.1. The earthworks and infrastructure for roads, plazas and drainage are required as part of grounds development in the inspection site, within the boundaries of the plot, connection to external access roads leading into the site installations and to the parking lots.

2.2. The designer must take into consideration the following points:

2.2.1. The plot designed for Customs site installation is part of the Jordan River border crossing.

2.2.2. It's part of contractor's work to implement all required earthworks.

2.2.3. It's contractor's responsibility to coordinate his works with IAA and in order to connect to the existing and planned roads and infrastructures.

3. Basic assumptions

- 3.1. Design for developing the ground will be based on the boundaries of the plot as given in drawings no 1.
 - 3.1.1 The area of about 20,000 m² will be surrounded by fence.
 - 3.1.2 Site main entrance for loaded trucks as well as private vehicles will be at the eastern side of the plot.
 - 3.1.3 The entrance and the exit tracks shall include two traffic lanes each.
- 3.2 The final face of the land within the grounds will be in accordance with the heights that will be given to the constructor before he starts designing. The constructor is responsible for designing the connections between the heights given and the heights existing outside the boundaries of the plot.
- 3.3 Design of the access road will be based on the location and heights of the existing roads and future roads in the area close to the plot.

4. Description of the work and the site

- 4.1 Development design of the grounds will be based on the approved designed heights above the ground that will be provided to the constructor for design.
- 4.2 The constructor is responsible for executing the earthworks that will bring the grounds to the appropriate heights. Design will be based on creating a convenient access to the plot grounds, making use of existing roads and highways, taking into account the land development close to the plot, and adapting the external connections through the main highway to the external national highways existing in the area.

In addition, the infrastructure of internal roads and internal and external access roads will be designed.

- 4.3 Design includes design of earthworks, supporting walls (if required), plazas, parking and drainage of the area taking into account the topography of the area.
Likewise, infrastructure for sidewalks, access paths to installations, gardening, etc. will be designed.
- 4.4 The plot will be fenced around and the vehicle entrance and exit gates will be incorporated in the fence, as well as gates for pedestrians and additional large emergency gates as required upon the final design of the site.

4.5 Planning considerations will take into account the soil type and the topography of the site and its surrounding. Topography data constitute the principal factor in planning the final heights, area drainage and the depth of drainage ditches.

5. Perimeter fence

5.1. A fence will be built along the entire site perimeter, as described hereafter: similar to Jordan River Terminal fence and according to IAA specifications.

5.2. The fence will be welded rigid mesh type.

5.3. The fence will be manufactured from PVC-coated round steel bars not less than 4.5 mm in diameter, with mesh apertures not exceeding 150Hx50W mm in size. The fence will be equipped with a 50-cm long angled top pointing outward at 45°, manufactured from the same profile. The mesh shall extend 14 cm beyond the angled rods with sharp edges 4 cm long.

5.4. All metal parts will be galvanized.

5.5. A concrete surrounding base beam will be built at the fence bottom along the entire fence length.

5.6. Fence height will be 250 cm measured from the concrete base.

5.7. The fence post spacing will be at least 3.0 m. The posts will be manufactured from at least 80x40x3.2 RHS profiles.

5.8. The corner posts will be manufactured from at least 80x80x3.6 RHS profiles and will be supported by two 80x40x3.2 RHS diagonal bars on the fence line, anchored in the concrete beam along the fence.

5.9. The posts will be set on base plates or into cored holes according to the soil consultant's recommendation. Reinforced concrete beam with minimum dimensions of 20/65 cm will be poured between the foundations.

5.10. Each fifth post will have a diagonal support on the fence line. The support will be anchored in the concrete beam.

5.11. Checkpoints in the fence will be designed for operational functions.

5.12. Each checkpoint will comprise the following:

- a. A manually opened mesh gate (identical to the perimeter fence). The gate will remain open throughout working hours. The gate will include locks and

anchoring brackets for the closed position. The gate height will be the same as the perimeter fence. When in open position, the gate will not obstruct vehicle traffic through and around it.

b. Electrically operated lifting barrier.

When closed, the barrier will effectively bar the entire width of the entrance road. The bar will be operated and controlled by:

- Electric operation from the cabin's workstations;
- Driver's ID (At the exit gates) followed by verification of vehicle ID card (barcode or other means as offered by the Contractor).
- Electric operation from the Command & Control station (in the Traffic control room).
- Proximity sensor to prevent gate closing on a passing vehicle.

c. Pedestrian wicket entrance gate.

The wicket gate will be operated as follows:

- Swiping a magnetic card (personnel)
- Electrically, from the workstations (TBD).

The wicket gate will include mechanical locks for use outside working hours.

- A camera and an intercom will be installed on the outside near the wicket gate, connected to operators' workstations. (TBD)
- The wicket gate will be equipped with all the necessary hardware including a hydraulic closing device.

6. Infrastructure of roads, plazas, earthwork and drainage

6.1. The infrastructure of roads, earthworks and drainage in the plot grounds and outside it, includes the following functions:

6.1.1. Earthworks and retaining walls (if required);

6.1.2. Internal roads, plazas and parking lots;

6.1.3. Access roads (outside the grounds);

- 6.1.4. Sidewalks;
- 6.1.5. Drainage systems;
- 6.2. Design of the infrastructure of roads and earthwork and drainage includes:
 - 6.2.1. Surveying, earthworks, roads, plazas and drainage;
 - 6.2.2. Preliminary design of the road system (including access roads), plazas and drainage (designs and cross-sections);
 - 6.2.3. Design of the ground levels of the buildings and installations relating to the infrastructure;
 - 6.2.4. Local drainage, sedimentation pits, etc;
 - 6.2.5. Technical specification and bill of quantities calculated for performance of the work and ordering materials (see general guidelines). Specifications will include the list of designs relevant for the specification and bill of quantities.

7. Data for design of development of the grounds

The details of design data are as follows:

- 7.1. The area designated for the inspection facility shall be located at Jordan River Terminal and have an area of about 20,000.m². (See drawing. No. 1)
- 7.2. Internal roads will have a minimum width of 5.0 m of asphalt plus 2.0 m pavement on both sides. Gradient should not be higher than 4%. Regarding the truck traffic speed on site, it is advisable that the designed speed will not exceed 50 km/h. The horizontal radius will be adequate for maneuvering and driving heavy vehicles (semi-trailers) loaded with containers.
- 7.3. Parking lots and horizontal radiuses at the end of the plazas will correspond to the requirements of the size and type of vehicles.
- 7.4. Access roads to the plot will have a minimum width of 7.0 m of plus 2.0 m of pavement on both sides.

The longitudinal gradient will be designed according to the existing topography, adapting it to the gradients and levels designed within the boundaries of the plot and to the existing heights of the roads outside the plot. The designed speed is 60

km/h.

The horizontal radius will fit all kinds of vehicles.

- 7.5. A network of paths and sidewalks will be designed for the use of visitors (truck drivers).
- 7.6. An efficient system of directing signs must be installed in order to prevent unnecessary maneuvers by the trucks.
- 7.7. Drainage will be affected in accordance with the topography of the land and the drainage requirements will correspond to the environmental quality requirements.
- 7.8. Inside the perimeter fence parking lots for private vehicles will be designed (TBD).
- 7.9. In all vacant areas throughout the installation, as required, gardening, suited to sites climate, will be provided, including an automatic irrigation system.

8. Standards and specifications for design of roads, plazas and development of the grounds

- 8.1. * General specification for building works (chapter 40 - General Specification to develop the site and paving);
- 8.2. * General specification for building works (chapter 41 - General Specification for gardening and irrigation);
- 8.3. * General specification for building works (chapter 50 - General Specification for concrete surfaces);
- 8.4. * General specification for building works (chapter 51 - General Specification for paving roads and plazas);
- 8.5. Israeli Standards IS 3, 8, 19, 118, 123, 161, 168, and 362 - for asphalt roads as follows:
 - 3- Aggregate
 - 123- Understanding layers
 - 161- Bitumen and emulsion
 - 8- Paving initial concrete products

- 19- Curbstone
- 118- Concrete for building uses
- 362 – Asphalt concrete

- 8.6. Israeli Standards IS 19, 688 - for curbstones and channel stones.
- 8.7. Israel Standard Institution Specification - ISIS 68 - retaining walls of prefabricated elements.
- 8.8. Green building- see reference to public housing Israeli standard no 5281: demand of 55 points and 20% recycled crushed stone bedding.
- * This refers to the latest available version of the documents, which are published by the Special Inter-Office Committee and the Building and Property Division of the Ministry of Defense, and the Design and Engineering Branch and the Public Works Department of the Ministry of Building and Housing.
- 8.9. All works should be done according to the general specification of road building and bridging of 'Israel Roads-national transport infrastructure company ltd'.

8.9.1. Lab test requirements should match the Israeli standards as follow:

Testing procedures:

- 1. sample
- 2. building materials classification
- 3. broken ground models
- 4. sifting
- 5. L.L – liquid limit, IP –plastic index, PL –plastic limit
- 6. Sand equivalent
- 7. Specific gravity
- 8. Dampness capacity
- 9. Relative dampness
- 10. Field density and the tightening to platform and base
- 11. Identification and sorting grounds
- 12. Asphalt Composition mixture
- 13. Contents of grains in aggregates

14. Field density and the tightening in asphalt layers
15. Guidance to asphalt cement factory production supervisor

8.10. Notice: The edge of all asphalt works should be done to the line of existing asphalt roads up to 6 meter beyond the parcel limit (if needed) in order to maintain proper connection between the new asphalt road to existing roads.